Saskatchewan
Parks, Recreation
and Culture

Saskatchewan Game Management

1988-89

91-06138/

Saskatchewan Game Management 1988-1989

Compiled by
Saskatchewan Parks, Recreation and Culture
Wildlife Branch
Population Management Section
3211 Albert Street
Regina, Saskatchewan
S4S 5W6

September 1989

ACKNOWLEDGEMENTS

The Saskatchewan Game Management Report is produced annually by the Population Management Section of the Wildlife Branch. The report was co-authored by Marlon Killaby, Rhys Beaulieu, Dave Brewster, Dwight Dobson, Bob Oliver, Randy Seguin, Tim Trottier, Marvin Hlady, Phil Haughian and John Mulhern. Marlon Killaby acted as senior editor and co-ordinator while Dave Phillips reviewed the text. Special appreciation is extended to Mary Ann Zipchian for her effort in organizing and typing the manuscript in its entirety.

Many other members of the Wildlife Branch, along with the staff of Management Services Branch, made large contributions in its production. Fred Beek, Dale Hjertaas, Hugh Hunt and Regional Wildlife staff assisted in date collection, analysis and advice.

Saskatchewan Parks, Recreation and Culture (SPRC) is indebted to the hunters of Saskatchewan for providing hunting information through venues such as the Big Game and Game Bird Hunter Questionnaire surveys, hunter check stations and upland game bird wing collections, all of which form the foundation of this report.

Special thanks is extended to the staff and students of the Saskatchewan Institute of Applied Science and Technology (SIAST), Woodland Campus and Northlands Career College, and the students of the Wildlife Society, University of Regina for their participation in SPRC sponsored projects. John Lay and Kelly Rempel are complemented for their work on mule deer shot placement and wounding loss while Don Brown and Don Michalchuk contributed through their moose tick study.

A debt of gratitude is owing Dr. Hamilton Greenwood for his interest and time invested in big game research which involved SIAST students. Bill and Sharon Yeast are recognized for their support of SPRC projects and whose co-operation has been most appreciated over the years.

The significant contribution of SPRC Operations staff to game management in Saskatchewan is also recognized. They collect many of the biological samples used to determine the age and sex compositions of kills, and are instrumental in conducting population surveys. The Conservation Officer frequently serves as our "eyes and ears", reporting qualitative information pertinent to wildlife.

EXECUTIVE SUMMARY

Big Game

Licences and Revenue

Licence sales totalled 86,858 licences which represents a 4% increase from 1987 (Table 1). White-tailed deer, moose, pronghorn antelope and elk sales rose by 10%, 5%, 25% and 15%, respectively. Small declines were noted in mule deer and black bear (4% and 3%, respectively) while barren-ground caribou fell 44% due the lack of caribou migration into Saskatchewan. Big game licence revenue, as shown in Table 1, increased for the second year in a row. A 19% rise ($493,955.00) was recorded in 1988 as compared to 1987, a result of more liberal quota allocations in the Big Game Draw and a renewed interest in open, regular seasons for whitetails, moose and elk.

The 1988 Big Game Draw

The only significant change in the Draw occurred with the archery and muzzleloading antlerless mule deer seasons, where hunters under the age of sixteen were eligible for these licences. Although applications were up 14% from 1987, not all licences were allocated (Table 2). In the rifle seasons, 204 antelope licences and 157 antlerless mule deer licences remained unclaimed while archers left 16 moose, 96 either-sex mule deer and 109 antlerless mule deer licences. Muzzleloaders filled all of their 1988 licence allocations.

Thirty-four percent (34%) of the eligible Super A pool applicants for the special elk seasons were successful in obtaining a licence (Table 2). These applicants had a one in 2.9 chance of being drawn, identical to 1987. Unlike elk, applicants from lower pools for the other big game species did receive licences. Most noteworthy was that 88% and 52% of the Pool B and C applicants for antelope were successful while 97% and 30% of the Pool B and C applicants for antlerless mule deer also received licences. The either-sex mule deer season gathered the greatest number of applications (11,876) than any other big game species in 1988.

White-tailed Deer

With good hunting conditions and higher hunter participation, the white-tailed deer harvest increased 21% from 29,399 deer in 1987 to 35,470 deer in 1988, similar to harvest levels experienced during the early 1980's. The Parkland ecozone supports the highest deer densities in the province and consequently,

Table 1. Estimates of hunting licence sales and game harvests, 1986 to 1988.

	Licence Sales[a]				Harvest			
	1986	1987	1988	% Change	1986	1987	1988	% Change
1. **Wildlife Habitat Certificate**	—	74,504	72,751	- 2%				
2. **Big Game**								
White-tailed Deer	52,160	47,105	51,758	+10%	34,742	29,399	35,470	+21%
Moose	11,486	11,046	11,652	+ 5%	3,566	3,487	3,850	+10%
Mule Deer	12,196	10,063	9,623	- 4%	9,650	8,058	7,573	- 6%
Antelope	3,279	3,713	4,640	+25%	2,534	2,950	3,705	+26%
Elk	4,060	3,486	4,006	+15%	868	814	788	- 3%
Black Bear	7,881	7,703	5,145	- 33%	2,391	1,671	1,257	- 25%
Woodland Caribou	128	—	—	—	45	—	—	—
Barren-ground Caribou[b]	51	61	34	- 44%	46	48	0	-100%
Big Game Total	**91,241**	**83,177**	**86,858**	**+ 4%**	**53,842**	**46,118**	**52,643**	**+14%**
2. **Game Birds**								
Saskatchewan Resident	41,317	35,190	32,077	- 9%				
Canadian Resident	2,158	2,029	1,648	- 19%				
Non-resident	3,731	3,895	3,031	- 22%				
Ducks					181,077	135,977	72,186	- 47%
Geese					159,111	133,052	138,864	+ 4%
Sandhill Crane					7,480	4,774	5,183	+ 9%
Sharp-tailed Grouse					78,565	78,210	51,786	- 34%
Hungarian Partridge					92,270	103,903	78,621	- 24%
Ruffed Grouse					47,978	89,322	87,065	- 3%
Spruce Grouse					11,883	14,213	15,332	+ 8%
Pheasant					10,557	16,439	11,160	- 32%
Ptarmigan					N/A	330	153	- 54%
Game Bird Total	**47,206**	**41,114**	**36,756**	**- 11%**	**588,921**	**576,220**	**460,289**	**- 20%**
Provincial Licence Sales	**138,447**	**198,795**	**196,365**	**- 1%**				

---

[a] Final licence sale figures as of June 1.
[b] Includes traditional barren-ground caribou use licences.

GROSS REVENUE FROM LICENCE SALES

	1986	1987	1988	% Change	Dollar
Wildlife Habitat Certificate	—	745,040	727,510	- 2%	- 17,530
Big Game	2,511,380	2,570,090	3,064,045	+19%	+493,955
Game Bird	894,170	842,850	706,270	- 16%	- 136,580
Provincial Game Licence Revenue	$3,405,550	$4,157,980	$4,497,825	+ 8%	$+339,845

REVENUE BY SPECIES, 1988

Game Birds	706,270
White-tailed Deer	1,764,065
Moose	457,280
Mule Deer	336,805
Antelope	162,400
Elk	142,560
Black Bear	200,255
Barren-ground Caribou	680
Total	$3,064,045

Table 2. Licence allocations, eligible and successful applicants by priority pool, and possible 1989 Super A Pool applicants for the 1988 special seasons.

Season	Species	Licences Available (Issued)	Super A Applicants	Successful Super A Applicants	Pool A Applicants	Successful Pool A Applicants	Pool B Applicants	Successful Pool B Applicants	Pool C Applicants	Successful Pool C Applicants	Total Eligible Applicants	Number of Super A Pool Applicants in 1989[a]
Rifle	Elk	1,100 (1,120)	3,269	1,120 (34%)[b]	3,637	0	563	0	483	0	7,952 (14%)	5,786
	Moose	2,150 (2,217)	1,415	1,084 (77%)	3,260	1,104 (34%)	850	18 (2%)	770	11 (1%)	6,295 (35%)	2,543
	Mule Deer	6,000 (6,162)	644 (100%)	644	5,076	4,271	4,412	1,009	2,744	238	11,876	805
	Antlerless Mule Deer	2,250 (2,093)	0	0	1,652	1,617 (98%)	288	279 (97%)	660	197 (30%)	2,600 (81%)	35
	Antelope	4,550 (4,346)	64	64 (100%)	2,615	2,589 (99%)	1,172	1,034 (88%)	1,279	659 (52%)	5,130 (85%)	26
Total		16,050 (15,938)	5,392	2,912	16,240	9,581	6,285	2,340	5,936	1,105	33,853	9,195
Archery	Moose	50 (34)	0	0	15	15 (100%)	2	2 (100%)	17	17 (100%)	34 (100%)	0
	Mule Deer	1,000 (904)	2	2 (100%)	128	128 (100%)	156	156 (100%)	647	618 (96%)	933 (97%)	0
	Antlerless	150 (41)	0	0	24	24 (100%)	10	10 (100%)	7	7 (100%)	41 (100%)	0
	Antelope	300 (300)	1	1 (100%)	89	89 (100%)	45	45 (100%)	220	165 (75%)	355 (85%)	0
Total		1,500 (1,279)	3	3	256	256	213	213	891	807	1,363	0
Muzzleloading	Mule Deer	250 (250)	72	72 (100%)	241	178 (74%)	183	0	191	0	687 (36%)	0
	Antlerless Mule Deer	150 (150)	0	0	132	132 (100%)	33	18 (55%)	57	0	222 (68%)	0
Total		350 (350)	72	72	373	310	216	18	248	0	909	0
Special Season Totals		17,900 (17,567)	5,467	2,987	16,869	10,147	6,714	2,571	7,075	1,912	36,125	9,195

[a] Assumes all unsuccessful 1988 Super A and Pool A applicants will apply in 1989.

[b] Percent of successful applicants.

accounted for the highest proportion of the harvest. Harvests in the other ecozones increased slightly in response to growing deer numbers but the Farmland, Wildlife Management Zone (WMZ) harvest remains well below average because of depressed population levels. Populations in the southeast and east-central Parkland areas have increased significantly from the mid-1980's and hunting seasons were liberalized to maximize recreation opportunity. With some minor changes, hunting seasons for the remainder of the province were similar to the 1988 seasons. All populations continued to increase in 1989 as a result of the moderate 1988-89 winter and good spring fawning conditions.

Moose

The most significant element of the 1988 moose season was that the early regular season coincided more closely to the rut than the season has since the implementation of the Moose Management Program. Overall licence sales rose 6% in 1988 from 1987 levels (Table 1). Guided moose demonstrated the largest jump at 8% followed by the regular season at 6% and the special draw season at 3%. Harvest levels reflected this renewed interest in moose hunting by increasing 14% to 52,623 animals. Provincial hunter success remained at the 1987 level of 37% for all seasons combined.

Populations appear to be stable, if not increasing, throughout most of the northern commercial forest. The one exception is in the Bronson Forest (WMZ 68) where oil and gas exploration, unregulated kill and moose tick infestations are believed to have contributed to a decline in the local moose population. As a result the special draw season in the combined WMZ 47, 55 and 68 will be **closed** for 1989. In the remainder of the province, 1989 season dates and quotas will **remain similar** to 1988 except for a **quota reduction of 100 licences** in Fort a la Corne.

Mule Deer

The 1988 mule deer harvest declined 6% from that of 1987 owing to a 10% reduction in either-sex licences (Table 1). Despite a lower quota of antlerless licences in 1988 (350 less licences), sales actually increased by 4% as more hunters applied for this hunting opportunity than in 1987. Both archery and muzzleloading rifle sales increased in 1988, muzzleloading demonstrating the largest gain of 73% due to quota changes. Provincial hunter success remained at traditional levels of 85-90% for the rifle seasons, 70-75% for muzzleloading rifle and 25-30% for archery.

Throughout the 1980's the overall management strategy for mule deer was to stabilize populations in high density areas, thus reducing potential over-utilization of habitat and balancing numbers to a level tolerable to landowners and the hunting public. Mild winters, the lack of hunter demand for antlerless licences and a shortage of snow in order to carry out aerial surveys has resulted in the under-harvest of mule deer in certain WMZ. As a result licence allocations will be **increased by 35%**. The major impact will be felt in the **antlerless quotas** which will more than **double** in 1989 as compared to 1988. Four additional WMZ (8, 12, 13 [east of Highway #4] and 46) will be listed for antlerless seasons and two new either-sex seasons will be created in WMZ 44 and 47.

Elk

The 1988 elk harvest diverged little from that of 1987, declining only 3% (Table 1). In the regular season licence sales climbed 31% from 1,586 in 1987 to 2,429 in 1988. Reductions in licence allocations for Fort a la Corne and Cypress Hills resulted in special season sales of 13% below the 1987 level. Hunter success for both the regular (17%) and special (30%) seasons fell below 1987 averages of 22% and 34%, respectively.

Elk hunting early in the rut impacts the harvest of mature bulls which are critical to the social integrity and reproduction in elk populations. To preserve this integrity and ensure harvest of non-breeding bulls, the **regular elk season** opening date will be **delayed one week** in 1989. Growing populations in **WMZ 47 and 68**, augmented by transplants from Elk Island National Park, will result in the **opening of a regular elk season** in these WMZ while expanding cow/calf herds in **WMZ 58** will allow the **opening** of an introductory **either-sex season** of 50 licences. In the south, the draw quota for the West Block of Cypress Hills will be **increased** from 100 licences to **200 licences** in order to maintain a post-harvest population of approximately 700 animals.

Pronghorn Antelope

In relation to 1987 harvest levels, the 1988 antelope kill increased more than any other big game species hunted in Saskatchewan (+26%), climbing from 2,950 to 3,705 animals (Table 1). Licence sales reflected the growth in antelope populations due to mild winters and hunter selection for bucks. Sales climbed from 3,713 to 4,640 licences, yet, hunters maintained their traditionally high success rate of roughly 85-90%. Quotas have steadily increased throughout the latter part of the 1980's and in some WMZ not all of the licence allocations have been sold.

Antelope populations will continue to grow in light of another mild winter in 1988-89 and a provincial kid to doe ratio of 0.64 kids:doe observed in late June on the aerial survey. This, in turn, will afford more recreational potential to the Saskatchewan antelope hunter. Licence allocations for rifle hunting will be increased by 450 licences; 150 in WMZ 3, 50 in WMZ 6, 75 in WMZ 8 and 11 combined, 75 in WMZ 9 and 100 in WMZ 10. As well, archery quotas will also rise from 300 in 1987 to 400 in 1989.

The most significant change in 1989 antelope seasons will be the **experimental muzzleloading seasons** in WMZ 7 and 14. Unlike other primitive weapon seasons where hunters are drawn from pools exclusive to weapon type, the antelope muzzleloading hunters will come from the same pool as hunters who wished to hunt with a rifle only. The first three days of the season (**Oct. 23 to 25**) will be exclusive to the use of a muzzleloading rifle while any legal weapon may be used from **October 26 to November 18**. There will be no dress restriction for hunters in the muzzleloading portion of the season, but legal colours must be worn on and after October 26.

Black Bear

The 1988 bear harvest of 1,257 was a 25% drop from the 1987 level of 1,671 and 27% from the 1984-87 average of 1,720 bears (Table 1). However, the termination of the **free bear permit** available to big game hunters in some of the Forest WMZ was the major contributor to this dramatic decline. When the free permits are removed from the 1987 harvest statistics, the actual decline between 1987 and 1988 was only 6%. The greatest deterioration in licence sales was with Saskatchewan hunters who purchased 14% fewer licences while non-residents of Canada (primarily Americans) bought surprisingly 39% more licences. In 1988 non-residents made up close to one-third of all bear hunters in the province. Despite a overall reduction in total bear hunters, hunter success declined for the second straight year, down to 29%.

Short of monitoring each and every bear, no tried-and-true method of estimating bear populations has been developed. The population status must be measured through indirect methods such as field reports from hunters, outfitters and conservation officers. Biological collections such as tooth and reproductive tract samples and results of hunter success/activity by way of the Big Game Hunter Questionnaire also provide important clues as to the state of our bear populations.

Analysis of these indicators suggests bear populations in Saskatchewan have declined dramatically to a point where, in order to maintain the recreational harvest of bears, the second bear licence must be **eliminated**. As well the status of the fall bear season will be reviewed in light of declining bear stocks. The new Guides and Outfitters Regulations, which prohibits non-residents from hunting big game without the services of a registered guide, is expected to result in a drop of American hunters coming into the province to hunt bears. The collection of biological data on bears will be intensified to permit a higher degree of precision in estimating current population trends.

Woodland Caribou

The woodland caribou season was closed province-wide in 1987, in response to the apparent absence of caribou from large parts of their historic southern range.

Minimal snow cover during the early part of the 1988-89 winter prevented any attempts at obtaining population density or structure information by way of helicopter surveys.

The woodland caribou season will remain **closed** in 1989 until such time as better biological information is available on their population status.

Barren-ground Caribou

As in the past years, only residents of WMZ 76 were allowed to sport hunt barren-ground caribou. Hunters were permitted to purchase two either-sex licences. A special **Subsistence Use Hunting Policy and Licence** came into effect which afforded traditional users of caribou, and their family members, the opportunity to purchase two either-sex licences per person at a lower fee than that of sport hunters. Only 34 sport licences and no Subsistence Use licences were sold in 1988-89 (Table 1) as a result of snow conditions which limited caribou migration into Saskatchewan. Unregulated and subsistence hunter harvest was conducted solely in the Northwest Territories and was below the 11 year average of 4,000 animals.

The Caribou Management Board, which Saskatchewan is a member, will continue to co-ordinate management of the Beverly and Kaminuriak herds. The 1989-90 season will be similar to the 1988-89 season.

Game Birds

Licences and Revenue

Licences sales totalled 36,756 licences, down 11% and 22% from 41,114 in 1987 and 47,206 in 1986, respectively (Table 1). Provincial residents purchased 32,077 licences, down 9%. Further declines were encountered in out-of-province Canadian (1,648 - down 19%) and non-residents of Canada sales (3,031 - down 22%). As a result of these declining licence sales, total revenue for game birds fell for the second straight year to $706,270, down 16% (Table 1). The continual decline in duck populations due to drought on the prairies is believed to be the major factor influencing game bird hunting and licences sales. Active waterfowl hunters decreased 10% from 1987 and is now 51% below the 1973-87 average. Migratory Game Bird Permit sales in Saskatchewan mirrored this loss of hunter interest by declining to 23,258 permits, down 22% from 1987.

Ducks

The total 1988 harvest of 72,186 ducks, 71% of which were mallards, was down 47% from the reported 1987 harvest of 135,977 birds (Table 1). Duck harvest per active Saskatchewan resident, Canadian resident and non-resident of Canada averaged 5.1, 5.0 and 8.0 birds, respectively. For the sixth consecutive year active goose hunters (19,646) cut numbered duck hunters (12,935). For every duck harvested in 1988, two geese were taken. This is the first year in recent history that such a reversal of roles in harvest statistics has occurred between ducks and geese.

Mid-winter waterfowl surveys (January 1989) indicated mallards were down 2% and total ducks down 7% from the previous year. Preliminary results from the joint Canadian Wildlife Service - United States Fish and Wildlife Service May pond and breeding pair surveys indicate that there will be marginally more ponds in southern Saskatchewan than in 1988. This will equate to no improvement in the 1989 duck population. As a result, the 1989 season will be similar to 1988, that is, **5 ducks daily, three of which may be mallards** and a **possession limit of 10, six of which may be mallards**. In 1989 **only 1 pintail** and **only 1 canvasback** may be taken **daily** and **possession will be 2 of each of these species.**

Geese

The 1988 goose harvest increased 4% from 133,052 in 1987 to 138,864 in 1988 (Table 1). Canada geese, all races combined, comprised 59% of the harvest (82,220) followed by white-fronted geese at 29,533 (21%), lesser snow geese at 24,345 (18%) and Ross' geese at 3,864 (2%).

Populations of large Canada geese continue to thrive in agricultural Saskatchewan. Snow goose populations have been increasing in recent years and Saskatchewan sporthunters have been encouraged to harvest more of these white geese. With the exception of calender adjustments, SPRC proposes no change in season dates and bag limits for 1989.

Sandhill Cranes

Sandhill crane harvest in Saskatchewan was traditionally small until 1985 when 6,200 cranes were taken. This figure was nearly double that of previous years. The crane harvest in 1988 (5,183) was 9% above the 1987 provincial estimate of 4,774 birds and 12% over the 9 year average (Table 1).

No major change in the status of the sandhill crane populations which migrate through Saskatchewan is foreseen for the 1989 season. Because of the inclusion of sandhill cranes on the CITES treaty list continues to pose a problem for non-resident of Canada hunting, the 1989 season will continue to be restricted to residents of Canada, only. Season dates and bag limits will be similar to 1987 except for date adjustments.

Sharp-tailed Grouse

The 1988 provincial sharptail harvest declined dramatically to 51,786 birds from 78,169 birds in 1987 (down 34%) and was well below the long-term average of 83,100 (Table 1). Over 50% of the harvest occurred during the first 3 weeks of the season. Harvest per active hunter dropped from 4.3 birds in 1987 (long-term average 3.6 birds per hunter) to 3.0 birds in 1988, despite only a 5% decline in active hunters.

Sharptail reproduction, based on wing samples collected in the hunter harvest, fell to a record low of 0.44 juveniles per adult in 1988. This estimate represents a 65% decline in relation to 1987 reproduction and 70% below the 1957-88 average. The extremely hot, dry spring of 1988 is believed to have had a significant negative impact on the nesting and brood rearing success of sharptails. The 1989 spring population index for breeding sharptails was estimated to be 1.50 males per km^2, a drop of 42% from 1988. The 1989 sharp-tailed grouse bag limits will be standardized throughout the province at 3 daily and 6 in possession. Populations densities remain adequate to retain the traditional opening date of September 20 in the south (WMZ 1 to 47) and September 6 in the north (WMZ 48 to 76). However, the season in the south will be 2 weeks shorter in 1989, closing November 4 rather than November 18, and is expected to assist population recovery by reducing total harvest by approximately 12%.

Hungarian Partridge

For the sixth consecutive year the reported Hungarian partridge harvest surpassed the sharp-tailed grouse harvest. A total of 78,621 partridge were harvested (Table 1), a decline of 24% relative to 103,903 birds in 1987. As was the case for sharptails, the first three weeks of the season produced close to 50% of the annual harvest. Although harvest declined 24%, active partridge hunters fell by only 5% compared to 1987. Partridge kill per active hunter fell from 6.6 birds (highest every recorded) to 3.7 birds in 1988. However, the 1988 partridge per hunter estimate was still above the 1972-87 average of 3.5 birds.

The 1988 reproduction index of 0.77 juveniles per adult was the lowest ever recorded in 32 years. Like sharptails, this dramatic decline was attributed to the severe spring weather of 1988. Spring surveys of 436 farmsteads revealed a provincial index of 0.72 pairs per farmstead. In relation to the 1988 survey index (highest ever recorded), the 1989 index decreased by 53%. However, this estimate was still comparable or higher than indices throughout the 1980's. The 1989 outlook for Hungarian partridge recruitment and hunting opportunity is favourable. As a result of this forecast, the 1989 partridge season dates and bag limits will be **similar to 1988** and will **included a late season** in conjunction with the late pheasant season.

Pheasant

An estimated 4,941 Saskatchewan hunters participated in the 1988 pheasant season as compared to 5,523 hunters in 1987. The late season which was reinstated in 1987, accounted for 10% of the total 1988 harvest. Active pheasant hunters harvested 11,146 cocks (Table 1) which was 8% below the 12 year average and 32% below the 1987 harvest level of 16,439 cocks. Hunting success in terms of cocks harvested per active hunter declined from 3.0 birds in 1987 to 2.3 birds, down 23%.

The 1989 spring breeding index of 2.74 crows per survey stop was below that for 1987 and 1988, but above 1984-86 levels. Historical comparisons of spring breeding indices and harvest estimates similar to that of 1989 would indicate that the projected harvest should reach 12,000 cocks. Because pheasant populations remain at long-term averages, the 1989 season dates and bag limits will be **similar to 1988** and **continuation of the late season is warranted**.

Ruffed Grouse

Ruffed grouse in 1988 were entering the fourth year of high populations in their 10-year cycle of peaks and troughs. Active ruffed grouse hunters, whose numbers increased by 16%, responded to this peak by harvesting 86,766 ruffies (Table 1). This harvest was similar to 1987 and made ruffed grouse the number one upland game bird harvested in Saskatchewan. However, grouse per active hunter declined from 8.0 birds in 1987 to 6.6 birds in 1988.

The 1988 provincial reproduction index fell 27% from 4.02 juveniles per adult in 1987 to 2.93 juveniles per adult, however, it was still 6% above the 1979-88 average of 2.77. The outlook for the 1989 ruffed grouse season is mixed. Based upon historic projections, 1989 populations in the northwest and central parts of the province should decline as grouse enter the downward trend in their cycle. However, the northeast should maintain adequate populations as there appears to be a one-year lag between population crashes in the northeast as compared to the northwest and central portions of the range. Although a population crash is evident, season dates and bag limits will not change in order that hunters may take advantage of pockets of high populations for one more year. The management strategy of overlapping ruffed grouse seasons with big game seasons in the forest WMZ will continue to allow for additional recreational opportunity.

Spruce Grouse

The 1988 spruce grouse harvest of 15,332 birds (Table 1) was 7% higher than the 1987 harvest of 14,213 birds. Seventy-five percent of the 3,587 active hunters were successful in bagging at least one bird. The number of grouse harvested per active hunter was 4.3 birds while harvest per hunter day was 0.2 birds. In many cases spruce grouse are taken casually by ruffed grouse hunters.

Spring surveys and wing collections are not conducted for spruce grouse, but this species is believed to cycle in a fashion similar to ruffed grouse. The 1989 season dates and bag limits will be similar to 1988.

Willow Ptarmigan

Ptarmigan, as a game bird, is of little importance to bird hunters. Most of the ptarmigan range is relatively inaccessible and utilization is largely opportunistic by big game hunters and trappers. The reported 1988 harvest was 153 ptarmigan (Table 1) by 56 active hunters averaging 2.73 birds per hunter.

The 1989-90 season will again overlap the barren-ground caribou season to allow residents of WMZ 76 ample opportunity to harvest ptarmigan while in hunting camps.

TABLE OF CONTENTS

PAGE

Executive Summary i
Table of Contents xii
List of Tables xiii
List of Figures xix
List of Appendices xxiii

BIG GAME

GENERAL INFORMATION

Hunting Regulations 1
Data Collection Techniques 1

WHITE-TAILED DEER 5
MOOSE 35
MULE DEER 53
ELK 70
PRONGHORN ANTELOPE 83
BLACK BEAR 89
WOODLAND CARIBOU 99
BARREN-GROUND CARIBOU 100

GAME BIRDS

GENERAL INFORMATION

Hunting Regulations 102
Data Collection Techniques 102

MIGRATORY BIRDS

Introduction 106
Review of 1988 Hunting Season 106
Other Waterfowl Regulations 107

DUCKS 108
GEESE 119
SANDHILL CRANES 123

UPLAND GAME BIRDS

Review of 1988 Hunting Season 125
Population Status 129

SHARP-TAILED GROUSE 135
HUNGARIAN PARTRIDGE 146
PHEASANT 154
RUFFED GROUSE 161
PTARMIGAN 172

LIST OF TABLES

PAGE

Table 1. Estimates of hunting licence sales and game harvests, 1986 to 1988 ii

Table 2. Licence allocations, eligible and successful applicants by priority pool, and possible Super A Pool applicants in 1989 for the 1988 special seasons iii

Table 3. Big game hunter questionnaire statistics, 1988 3

Table 4. Provincial white-tailed deer licence sales, 1984 to 1988 . . . 5

Table 5. Provincial white-tailed deer harvest, 1988 6

Table 6. Provincial white tailed deer harvest, 1982 to 1988 7

Table 7. Grassland and Farmland either-sex white-tailed deer rifle harvest, 1988 8

Table 8. Parkland and Forest Fringe white-tailed deer rifle harvest, 1988 9

Table 9. Forest 1st and 2nd licence white-tailed deer rifle harvest, 1988 10

Table 10. Antlerless licence white-tailed deer rifle harvest, 1988 . . 11

Table 11. White-tailed deer regular rifle harvest for the highest harvest zones in Saskatchewan, 1984 to 1988 12

Table 12. Grassland and Farmland white-tailed deer archery harvest, 1988 13

Table 13. Parkland and Forest Fringe white-tailed deer archery harvest, 1988 14

Table 14. Forest 1st and 2nd licence white-tailed deer archery harvest, 1988 14

Table 15. Grassland white-tailed deer muzzleloader harvest, 1988 . . . 15

Table 16. Farmland white-tailed deer muzzleloader harvest, 1988 16

Table 17. Parkland and Forest Fringe white-tailed deer muzzleloader harvest, 1988 16

Table 18. Forest 1st and 2nd licence white-tailed deer muzzleloader harvest, 1988 17

Table 19. Provincial white-tailed deer harvest structure, 1985 to 1988 18

PAGE

Table 20. Percent harvest by age class of white-tailed deer from lower jaw samples collected by the department and the Saskatchewan Wildlife Federation, 1984 to 1988 19

Table 21. Sex and age composition of the 1988 Saskatchewan white-tailed deer harvest from lower jaw samples 20

Table 22. Sex and age composition of the 1988 white-tailed deer harvest in WMZ 15 to 17 and 31 to 34 from lower jaw samples 21

Table 23. White-tailed deer population estimates based on stratified random block aerial survey sampling, 1979 to 1985 23

Table 24. Provincial white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988 24

Table 25. Percentage of white-tailed does with and without fawns based on preseason field observations, September to November 1985 to 1988 25

Table 26. Percentage of yearling and mature males in the provincial white-tailed deer population based on preseason field observations, September to November 1985 to 1988 25

Table 27. Grassland white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988 26

Table 28. Farmland white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988 27

Table 29. Parkland white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988 27

Table 30. Forest Fringe white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988 28

Table 31. Forest white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988 28

Table 32. Weather severity index calculated during the 1988-89 winter for the Broadview and Estevan weather stations in southeastern Saskatchewan 29

Table 33. Provincial moose licence sales, 1983 to 1988 35

Table 34. Moose sport harvest by licence type, 1984 to 1988 37

Table 35. Provincial moose harvest structure, 1985 to 1988 38

PAGE

Table 36. Comparison of season dates for regular and guided moose licences 39

Table 37. Hunting season percent of bull versus calves 39

Table 38. Sex and age composition of the 1988 Saskatchewan moose harvest as calculated from tooth samples 40

Table 39. Sex and age composition of the northern moose harvest based on check station samples, 1984 to 1988 41

Table 40. Moose population estimates based on transect aerial surveys, 1978 to 1989 44

Table 41. Moose population estimates based on stratified random quadrat aerial survey sampling, 1982 to 1989 45

Table 42. Sex and age composition of the northern moose population based on post-season helicopter observation 46

Table 43. Provincial mule deer licence sales, 1984 to 1988 53

Table 44. Provincial mule deer harvest, 1988 54

Table 45. Estimated hunter success and harvest pressure during the either-sex mule deer rifle season, 1988 54

Table 46. Estimated hunter success and harvest pressure during the antlerless mule deer rifle season, 1988 55

Table 47. Provincial mule deer harvest structure and recreation days, 1987 and 1988 56

Table 48. Estimated hunter success and harvest pressure during the mule deer archery season, 1988 59

Table 49. Estimated hunter success and harvest pressure during the mule deer muzzlelaoding season, 1988 60

Table 50. Mule deer preseason herd structure (November 1 and 2, 1988) and postseason population estimates (December 1988 to January 1989) to sandhill complexes 60

Table 51. Analysis of the December 15 and 16, 1988 linear transect survey of WMZ 10. Ranches/pastures are compared between one another 61

Table 52. Mule deer preseason herd structure (November 1, 1988) and postseason population estimates (December 15 and 16, 1988) for WMZ 10 Great Sandhills (alpha=0.10) 62

Table 53. Provincial mule deer population structure based on preseason field observations, September to November 1985 to 1988 . . . 63

PAGE

Table 54. Grassland mule deer population structure based on preseason field observations, September to November 1988 63

Table 55. Percentage of yearling and mature males in the provincial mule deer population based on preseason field observations, September to November 1986 to 1988 64

Table 56. Percentage of mule deer does with and without fawns based on preseason field observations, September to November 1986 to 1988 64

Table 57. Mule deer licence quotas for rifle seasons, 1984 to 1989 . . 66

Table 58. Mule deer licence quotas for primitive weapons seasons, 1988 and 1989 67

Table 59. Provincial elk licence sales, 1984 to 1988 70

Table 60. Estimated hunter success and harvest pressure 71

Table 61. Estimated hunter success and harvest pressure during the special either-sex seasons, 1988 72

Table 62. Analysis of bull elk age classes from check stations. September regular seasons, 1984 to 1988 76

Table 63. Provincial pronghorn antelope licence sales, 1984 to 1988 . . 83

Table 64. Provincial antelope harvest, hunting success and pressure . . 84

Table 65. Population densities and sex/age composition for antelope in Saskatchewan, 1989 85

Table 66. Antelope kid:doe ratios estimated by July aerial surveys, 1982 to 1989 86

Table 67. Antelope kid:mature doe (2+ years) ratios estimated by July aerial surveys, 1983 to 1987 86

Table 68. Antelope licence quotas for years 1987 through 1989 88

Table 69. Provincial bear licences sales by hunter residency, 1985 to 1988 89

Table 70. Black bear licence sales and percent hunter success by licence type, 1985 to 1988 90

Table 71. Provincial bear harvest and hunter activity (1st, 2nd and free bear licences combined) by ecological zone, 1985 to 1988 91

Table 72. Sex and age ratios for bears taken on 1st and 2nd licences . 96

PAGE

Table 73. Saskatchewan game bird licence sales and migratory game bird permit sales, 1986 to 1988 103

Table 74. Saskatchewan waterfowl hunting activity, 1973 to 1988 106

Table 75. Estimated retrieved kill of ducks in Saskatchewan 1979 to 1988 by zone (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa; Provincial estimates via SPRC) . . . 108

Table 76. Estimated retrieved kill of mallards in Saskatchewan 1979 to 1988 (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa; Provincial estimates via SPRC) . . . 109

Table 77. Saskatchewan waterfowl harvest summary, 1988 111

Table 78. Long-term trend in May pond estimates by stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean (estimates in thousands) 112

Table 79. Status of waterfowl breeding population estimates by species and stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean (estimates in thousands) 114

Table 80. Long-term trend in July pond indices by stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean, and comparison of May with July ponds in 1989 (estimates in thousands) 115

Table 81. Status of waterfowl breeding population estimates by species and stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean and the 1955 to 1988 long-term mean (estimates in thousands) . . 117

Table 82. Estimated harvest of geese in Saskatchewan by federal harvest zone, 1978 to 1988 (after SPRC and CWS, Ottawa) . . . 119

Table 83. Goose harvest in Saskatchewan, 1982 to 1988 120

Table 84. Estimated retrieved kill of sandhill cranes in Saskatchewan, 1979 to 1988 (federal estimates after Progress Note 126 and interim data via L. Metras, CWS, Ottawa; provincial estimates after SPRC) 123

Table 85. Saskatchewan upland game bird hunting activity, 1973 to 1988 126

Table 86. Saskatchewan upland game bird harvest summary, 1988 127

PAGE

Table 87. Saskatchewan upland game bird hunting activity by ecological zone (1986 to 1988) 128

Table 88. Sharp-tailed grouse hunting statistics by Saskatchewan ecozone for 1987 and 1988 136

Table 89. Sharp-tailed grouse hunting data for Saskatchewan, 1972 to 1988 138

Table 90. Sharp-tailed grouse reproductive index (juveniles/adult) 1975 to 1988 (based on wing samples from harvest) 139

Table 91. Sharp-tailed grouse breeding population surveys, April to May 1989 141

Table 92. Hungarian partridge hunting data for Saskatchewan, 1972 to 1988 147

Table 93. Hungarian partridge hunting data for Saskatchewan by ecological division, 1988 vs. 1987 149

Table 94. Hungarian partridge reproductive index (juveniles/adult), 1957 to 1988 (based on wing samples from harvest) 150

Table 95. Hungarian partridge breeding population surveys, spring, 1989 151

Table 96. Pheasant hunting data for Saskatchewan, 1976 to 1988 155

Table 97. Four important pheasant hunting zones in Saskatchewan, 1985 to 1988 157

Table 98. Spring breeding surveys of ring-necked pheasant crows per survey stop, 1961 to 1989 158

Table 99. Cock pheasant breeding population surveys, spring 1989 . . . 158

Table 100. Ruffed grouse hunting data for Saskatchewan, 1972 to 1988 . . 161

Table 101. Ruffed grouse hunting data for Saskatchewan by ecological divisions, 1988 vs. 1987 162

Table 102. Ruffed grouse harvest and hunting pressure by wildlife management zone, 1988 163

Table 103. Five important ruffed grouse harvest zones in Saskatchewan, 1986 to 1988 165

Table 104. Ruffed grouse reproductive index (juveniles/adult), 1979 to 1988 (based on wing samples from harvest) 166

Table 105. Ruffed grouse breeding population surveys, spring 1989 . . . 166

Table 106. Saskatchewan spruce grouse harvest and hunting pressure by WMZ, 1988 170

LIST OF FIGURES

PAGE

Figure 1. 1988 big game hunter participation 4

Figure 2. Created recreation days: 1988 big game seasons 4

Figure 3. Provincial harvest and hunt activity, 1960 to 1988 7

Figure 4. Sex and age composition of the 1988 Saskatchewan white-tailed deer harvest from lower jaw samples 20

Figure 5. Sex and age composition of the 1988 white-tailed deer harvest in WMZ 15 to 17 and 31 to 34 from lower jaw samples 21

Figure 6. Estimated provincial hunter success and harvest pressure during the moose season, 1959 to 1988 37

Figure 7. Sex and age composition of the 1988 moose harvest based on tooth samples. Age class 15.5 years and older 41

Figure 8. Sex and age composition of the provincial moose harvest based on check station samples, 1965 to 1988 42

Figure 9. Moose hair/tick infestation index, March 31, 1989 aerial surveys 47

Figure 10. Moose hair loss/tick indices, northwestern Saskatchewan, 1983 to 1989 48

Figure 11. Composition of provincial mule deer harvest from all ecozones and all season types 1986 to 1988, inclusive 56

Figure 12. SIAST check station: Antler configuration of bucks and sex/age composition of either sex and antlerless seasons in WMZ 10, 1988 57

Figure 13. Provincial harvest structure for elk, 1984 to 1988 75

Figure 14. Sex and age composition of the 1988 Forest ecozone harvest based on tooth samples, 1988 75

PAGE

Figure 15. Regular season bull harvest, 1984 to 1988 77

Figure 16. Regular season bull harvest, 1984 to 1988. Antler configurations as reported at check stations 78

Figure 17. Sex and age composition of 1985 bear harvest, northeastern (n=47) 93

Figure 18. Sex and age composition of the 1986 bear harvest, northwestern Saskatchewan 93

Figure 19. Sex and age composition of the 1987 bear harvest, northwestern Saskatchewan 94

Figure 20. Sex and age composition of the 1988 bear harvest, northwestern Saskatchewan 94

Figure 21. Sex and age composition of the 1988 bear harvest, northern Saskatchewan 95

Figure 22. Young female bears harvested in northwestern Saskatchewan, 1986 to 1988 95

Figure 23. Hunter participation by species in the 1988 game bird hunting season 104

Figure 24. Recreation days created by species in the 1988 game bird hunting season 104

Figure 25. Saskatchewan duck hunter days and harvest, 1973 to 1988 109

Figure 26. Saskatchewan 1988 mallard harvest by residency and weekly interval 110

Figure 27. Average precipitation (mm) for southern Saskatchewan (April 1 to July 9) 116

Figure 28. Saskatchewan goose hunter days and harvest, 1973 to 1988 120

Figure 29. Saskatchewan 1988 goose harvest by residency and weekly interval 121

PAGE

Figure 30. Active upland game bird hunters in Saskatchewan, 1972 to 1988 126

Figure 31. Percentage of upland game bird harvest by residency and weekly interval 128

Figure 32. Saskatchewan upland game bird fall age ratios, 1957 to 1988. Based upon wing samples collected in harvest 130

Figure 33. Incubation and hatching chronology for sharp-tailed grouse in Saskatchewan 132

Figure 34. Incubation and hatching chronology for Hungarian partridge in Saskatchewan 133

Figure 35. Comparison of hatching periods for sharp-tailed grouse and Hungarian partridge as it relates to mean and 1988 spring temperatures 134

Figure 36. Saskatchewan sharp-tailed grouse hunting activity, 1957 to 1988 136

Figure 37. Percentage of sharp-tailed grouse harvest by residency and weekly interval 137

Figure 38. Important weeks in hatch chronology for Saskatchewan sharp-tailed grouse 140

Figure 39. Sharp-tailed grouse breeding population densities (males/m²) 142

Figure 40. Provincial sharp-tailed grouse breeding densities (males/m²) and polynomial regression indicating cycle nature of densities since 1969 142

Figure 41. Comparison of reproductive success and harvests to provincial breeding population densities 143

Figure 42. Saskatchewan Hungarian partridge hunting activity, 1972 to 1988 147

PAGE

Figure 43. Saskatchewan 1988 Hungarian partridge harvest by residency and weekly interval 148

Figure 44. Hungarian partridge indices and its relationship to sharp-tailed grouse and ring-necked pheasants 152

Figure 45. Important weeks in hatch chronology for Saskatchewan Hungarian partridge 153

Figure 46. Saskatchewan pheasant licence sales, active hunters and harvest, 1972 to 1988 155

Figure 47. Saskatchewan 1988 pheasant harvest by residency and weekly interval 156

Figure 48. Saskatchewan pheasant spring breeding population index vs. harvest 159

Figure 49. Saskatchewan 1988 ruffed grouse harvest by residency and weekly interval 164

Figure 50. Saskatchewan ruffed and spruce grouse harvest, 1972 to 1988 167

Figure 51. Saskatchewan 1988 spruce grouse harvest by residency and weekly interval 171

Figure 52. Saskatchewan 1988 ptarmigan harvest by residency and weekly interval 174

LIST OF APPENDICES

PAGE

Appendix 1. 1988 big game hunting season regulations 175

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form 179

Appendix 3. 1988 big game hunter questionnaire survey 186

Appendix 4. Designation of antler configuration and size for four big game ungulates in Saskatchewan 190

Appendix 5. Provincial harvest structure for elk 191

Appendix 6. Provincial age structure of elk bulls in the September regular seasons, 1984 to 1988 191

Appendix 7. Harvest of elk bulls by antler configurations, 1984 to 1988 . . 192

Appendix 8. Mean age of elk bulls by antler configuration, 1984 to 1988 . . 192

Appendix 9. Grassland and Farmland antelope rifle harvest, 1988 193

Appendix 10. Grassland and Farmland antelope archery harvest, 1988 193

Appendix 11. Saskatchewan 1988 game bird seasons 194

Appendix 12. Saskatchewan 1989 game bird seasons 196

Appendix 13a. Saskatchewan duck hunting regulations, 1976 to 1989 197

Appendix 13b. Saskatchewan goose hunting regulations, 1981 to 1988 198

Appendix 13c. Saskatchewan sharp-tailed grouse hunting regulations, 1976 to 1988 199

Appendix 13d. Saskatchewan Hungarian partridge hunting regulations, 1976 to 1988 200

Appendix 13e. Saskatchewan pheasant hunting regulations, 1975 to 1988 201

Appendix 13f. Saskatchewan ruffed grouse hunting regulations, 1976 to 1988 . 202

Appendix 14. Saskatchewan game management zones, 1975 to 1983 203

Appendix 15. Saskatchewan wildlife management zones, 1984 to 1989 204

Appendix 16. 1988 Saskatchewan game bird hunter survey questionnaire 205

PAGE

Appendix 17. 1988 Saskatchewan game bird hunter survey follow-up letter . . 209

Appendix 18. Sharp-tailed grouse breeding index [males/mi^2 (km^2)] and harvest, 1972 to 1989 210

Appendix 19. Hungarian partridge harvest and hunting pressure by Wildlife Management Zone, 1988 211

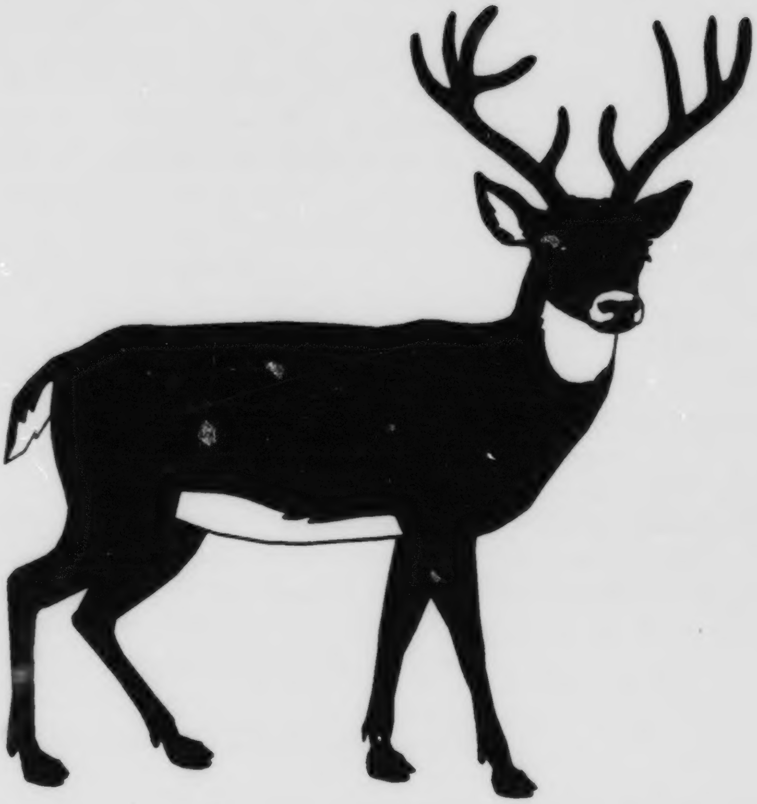
Appendix 20. Pheasant harvest and hunting pressure by Wildlife Management Zone, 1988 212

Appendix 21. Saskatchewan pheasant licence sales, hunting activity and harvest, 1972 to 1988 213

Appendix 22. Saskatchewan pheasant and spring breeding population index and harvest, 1972 to 1989 213

Appendix 23. Saskatchewan ruffed and spruce grouse harvest, 1972 to 1988 . . 214

BIG GAME



GENERAL INFORMATION

Hunting Regulations

Hunting season dates, bag limits and licence quotas for each big game species are presented in Appendix 1.

All mule deer, antelope and special moose and elk licences, were available only through a computerized draw (Appendix 2). As in previous years, resident hunters could purchase over-the-counter bull-calf moose and antlered elk licences if they were not successful in the special licence draws for these species. White-tailed deer, black bear and guided moose licences were available to resident, Canadian resident and non-resident of Canada hunters. Only residents of WMZ 76 were eligible for barren-ground caribou licences.

Hunters were allowed to purchase two white-tailed deer licences, the second licence valid in specific forest Wildlife Management Zones (WMZ). An additional antlerless whitetail licence was available to mule deer hunters for WMZ 6 and the WMZ 11-14 subzone.

Data Collection Techniques

Licence Sales

Department of Parks, Recreation and Culture (SPRC), Revenue Section, tabulated and mailed computerized draw licences directly to hunters.

White-tailed deer, woodland caribou, black bear, regular moose and regular elk licences were purchased through approximately 1,200 commercial vendors and SPRC district offices distributed throughout the province. Vendors returned sold and unsold licences to SPRC Revenue who were then able to determine provincial licence sale figures for each big game species.

Saskatchewan Big Game Hunter Questionnaire Survey

On November 21, 1988, 27,500 big game questionnaires were mailed to Saskatchewan residents, Canadian residents and non-residents of Canada (Appendix 3). Questionnaires were sent December 8, 1988. The hunters sampled included all 1988 special big game draw licence holders and a random selection of 1987 regular white-tailed deer licence holders. Since most big game hunters participate in more than one big game hunt, adequate information on regular moose, regular elk and bear harvests were supplied by the above sample.

Follow-up questionnaires were mailed on January 3, 1989 to hunters who failed to reply to the first questionnaire. The cut-off date for return of questionnaires was January 20, 1989. Returned forms were edited and the data entered into a computer. The data print-out was available for analysis by March 31, 1989 incorporating usable data from approximately 14,000 questionnaires or 51% of the total questionnaires mailed to hunters. Table 3 and Fig. 1 summarize the projected results.

Biological Data Collection Points

All hunters using designated jaw-tooth collection points for big game in Saskatchewan were eligible to enter a draw for major prizes. All hunters providing biological samples received a Wildlife Co-operator Lapel Pin.

Approximately 78 Saskatchewan Wildlife Federation branches along with 20 private co-operator collection points were used to obtain samples to determine age and sex information for white-tailed deer, moose and elk. Age determinations for elk and moose older than calves were based on tooth (incisor) cementum deposition. Molar wear on lower whitetail deer jaws were used to determine age classes.

Population Surveys

Aerial surveys were conducted during the winter months to estimate population levels, herd segregation and productivity in selected moose, white-tailed deer, mule deer and elk populations. January and February white-tailed deer, elk and moose population estimates were obtained using a stratified random block survey design. Transect surveys and sex-age surveys were employed to obtain population trend and herd structure data, respectively for winter moose and mule deer populations. Antelope herd structure and population index data are obtained from late June aerial surveys.

A population structure investigation (Co-operative Wildlife Management Study) continued for all big game species with the assistance of conservation officers, Saskatchewan Wildlife Federation members and the general public. Co-operators classified observed animals by sex (male vs. female) and age (fawn vs. adult) class, and provided information on antler development for males observed in the survey.

Table 3. Big game hunter questionnaire statistics, 1988.

Species	Actual Hunters		Hunter Success		Hunter Harvest		Days of Recreation
White-tailed Deer							
1st Archery	2,413	> 2,483	28%	>29%	683	> 643	12,520
2nd Archery	70		50%		35		205
1st Muzzleloader	1,696	> 1,746	37%	>37%	623	> 643	6,722
2nd Muzzleloader	50		40%		20		110
1st Rifle	36,254	>41,838	84%	>82%	30,470	>34,352	139,471
2nd Rifle	5,584		78%		3,882		17,947
Antlerless	270		73%		197		550
Total	46,337		78%		35,910		177,525
Mule Deer							
Archery either-sex	864		29%		252		3,953
Archery antlerless	38		18%		7		158
Muzzle either sex	247		71%		175		746
Muzzleloader antlerless	158		76%		122		416
Rifle either sex	6,080		86%		5,251		12,442
Rifle antlerless	1,988		89%		1,766		3,217
Total	9,375		81%		7,573		
Moose							
Special archery	34		15%		5		161
Regular archery	14		14%		2		54
Special either-sex	2,101		53%		1,120		8,887
Regular bull-calf	8,291		33%		2,723		40,103
Guided	228		unk		unk		unk
Total	10,668		36%		3,850		49,205
Antelope							
Archery	260		20%		53		1,152
Rifle	4,310		85%		3,652		8,806
Total	4,570		81%		3,705		9,238
Elk							
Special either-sex	1,014		31%		341		4,891
Regular bulls only	2,549		18%		447		12,522
Total	3,653		22%		788		17,413
Bear							
1st either-sex	4,104		27%		1,076		17,483
2nd either-sex	322		50%		161		1,127
Total	4,336		29%		1,237		18,610
Barren-ground Caribou[a]							
1st either-sex	15		0		0		0
2nd either-sex	10		0		0		0
Total	25		0		0		0
Grand Total	**78,964**		**67%**		**53,063**		**292,923**

[a] Caribou hunting by Saskatchewan residents was conducted solely in the Northwest Territories.

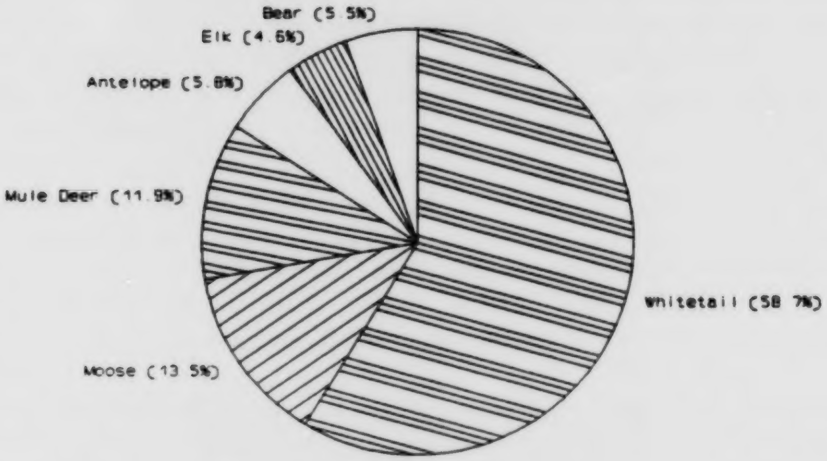


Fig. 1. 1988 big game hunter participation.

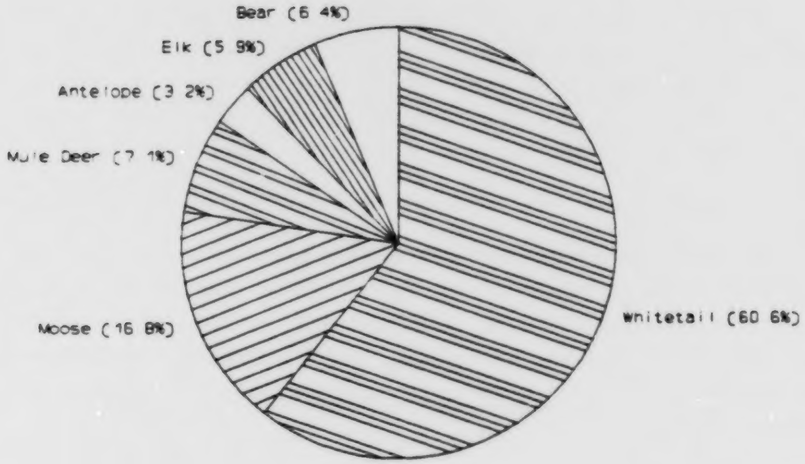


Fig. 2. Created recreation days by the 1988 big game seasons.

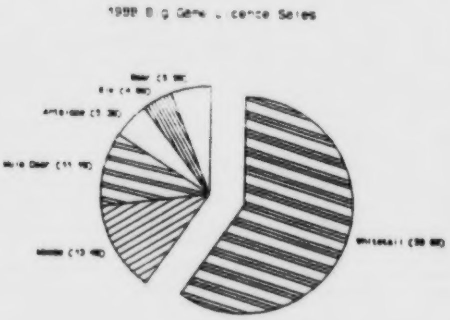
WHITE-TAILED DEER

A. REVIEW OF 1988 HUNTING SEASON

1. Licence Sales

- Total licence sales increased to 51,758, a 10% increase from 47,105 licences sold in 1987 (Table 4). However, long-term sales figures indicate that hunter numbers have declined, despite more liberal season dates and bag limits.
- The largest change involved first either-sex resident licence sales, which increased from 41,533 in 1987 to 43,023 in 1988, perhaps because of increased hunter interest in harvesting growing deer populations in southern Saskatchewan.
- This same trend continued in northern Saskatchewan as second deer licence sales increased to 7,109 licences, a 60% increase from 1987 and one of the highest sale figures on record as a result of unusually high Forest deer numbers.
- There were small increases in the number of Canadian and non-resident licences sold, but because of current season restrictions, they continue to represent only a small proportion of overall licence sales.

Table 4. Provincial white-tailed deer licence sales, 1984 to 1988[a].



	1984	1985	1986	1987	1988	% Change
1st Licence Sales						
Resident	49.603	45,532	48,432	41,533	43,023	+4%
Canadian Resident	705	786	491	438	576	+32%
Non-resident	60	136	157	253	532	+110%
2nd Licence Sales						
Resident (Antlerless)	—	419	1,512[b]	339	316	-7%
Resident	4,971	—	—	4,453	7,109	+60%
Canadian Resident	9	—	—	18	39	+117%
Non-resident	6			71	163	+130%
Other Licence Sales[c]						
Resident Archery	1,543	1,357	1,341	—	—	—
Resident Muzzleloading	684	577	587	—	—	—
Total Sales	57,583	48,807	52,160	47,105	51,758	+10%

---

[a] Final (June 1) sale figures; however, all data analysis based on licence sale projections available in February.

[b] Additional antlerless licences were sold due to liberalized mule deer quotas; some mule deer hunters were allowed to purchase antlerless whitetail licences.

[c] Starting in 1987, the 1st and 2nd licences were valid for archery, muzzleloader and rifle seasons; a separate licence was not required for each weapon type.

2. Provincial Harvest and Hunting Activity

- With normal temperatures and weather conditions, sport hunters experienced excellent hunting opportunity during all 1988 hunting seasons. There were 46,377 active hunters in the field, a slight increase from 38,496 hunters in 1987, which was the lowest number of whitetail hunters recorded in the past decade (Table 5).
- On a provincial scale, harvest from all weapon types increased 22%, from 29,399 (1987) to 35,910 (1988) deer, similar to harvest levels experienced during the early 1980's (Table 6; Fig. 3). Overall hunter success was similar to 1987 but remained higher than success rates reported during the early to mid-1980's. Hunters spent 177,527 days in the field, a 13% increase from 1987, but hunter days per animal remained at 5 days.
- The Parkland, Farmland, Forest, Grassland and Forest Fringe ecozones accounted for 32%, 22%, 21%, 17% and 8% of the provincial harvest, respectively. These percentages represent a slight change from previous years, with the Forest harvest higher than normal as a result of improved populations and liberalized bag limits and season dates. The Farmland and Parkland harvests also increased as a result of growing deer numbers, although harvests, particularly in the Farmland area, remained well below levels recorded in the early 1980's.
- Provincially, 41,838 regular rifle, 270 antlerless rifle, 2,483 archery and 1,746 muzzleloader hunters accounted for 96%, 1%, 2% and 2% of the harvest, respectively with success rates of 82%, 73%, 29% and 37% for

Table 5. Provincial white-tailed deer harvest, 1988.

	#Actual Hunters	#Zone Hunters	#Successful Hunters	%Hunter Success	Harvest	Harvest Structure Males:Females:Young (Actual Harvest)	Hunter Days	Hunter Days/ Animal
Ecological Zone								
Grassland	7,348	10,331	6,243	84.9	6,243	1.84:1:0.30	22,947	4
Farmland	10,304	15,746	7,974	77.3	7,974	3.33:1:0.32	37,813	5
Parkland	14,116	20,629	11,449	81.1	11,449	3.44:1:0.40	57,531	5
Forest Fringe	3,281	5,065	2,721	82.9	2,721	3.32:1:0.91	14,074	5
Forest	11,288	14,957	7,523	66.6	7,523	2.22:1:0.49	45,162	6
Shield	0.00	0.00	0.00	0.0	0	0.00:1:0.00	0	0
Total	46,337	66,728	35,910	77.5	35,910	3:15:1:0.39	177,525	5
Season								
Regular	41,838	60,458	34,352	82.1	34,352	3.24:1:0.38	157,420	5
Antlerless	270	287	197	73.0	197	0.03:1:0.55	550	3
Archery	2,483	3,602	718	28.9	718	2.50:1:0.30	12,725	18
Muzzleloader	1,746	2,381	643	36.8	643	2.30:1:0.55	6,832	11
Total	46,377	66,728	35,910	77.5	35,910	3.15:1:0.39	177,527	5

Table 6. Provincial white-tailed deer harvest, 1982 to 1988.

Ecological Zone	Harvest 1982	1983	1984	1985	1986	1987	1988	Percent Hunter Success 1982	1983	1984	1985	1986	1987	1988
Grassland[a]	4,243	3,893	6,110	3,840	8,129	5,539	6,243	61	61	83	47	74	88	85
Farmland	11,897	12,629	11,287	5,486	7,944	5,987	7,974	44	55	78	44	64	72	77
Parkland	13,047	11,255	13,608	7,384	11,358	8,751	11,449	52	57	78	44	65	82	81
Forest Fringe	—	—	2,145	1,336	2,900	2,558	2,721	—	—	67	45	70	78	83
Forest[b]	7,029	5,797	5,669	1,815	4,410	6,568	7,523	—	—	59	37	61	73	67
1st Licence	4,615	3,938	3,077	—	—	4,122	3,586	33	33	57	—	—	76	64
2nd Licence	2,414	1,859	2,592	—	—	2,446	3,937	45	46	62	—	—	70	69
Total	36,216	33,574	38,820	19,860	34,742	29,399	35,910	47	53	75	43	66	76	78

Ecological Zone	Hunter Days 1982	1983	1984	1985	1986	1987	1988	Hunter Days/Animal 1982	1983	1984	1985	1986	1987	1988
Grassland	14,214	12,453	12,032	19,075	29,015	22,611	22,947	3	3	2	5	4	4	4
Farmland	48,212	48,474	30,286	40,442	41,378	32,458	37,813	4	4	3	7	5	5	5
Parkland	55,313	49,791	39,967	52,869	65,142	49,159	57,531	4	4	3	7	6	6	5
Forest Fringe	—	—	9,365	12,270	18,196	14,470	14,074	—	—	4	9	6	6	5
Forest[c]	51,891	47,937	29,619	23,021	36,472	38,485	45,162	7	8	5	13	8	6	6
1st Licence	—	—	—	—	—	27,153	26,900	—	—	—	—	—	7	8
2nd Licence	—	—	—	—	—	11,332	18,262	—	—	—	—	—	5	6
Shield	—	—	—	—	—	29	0	—	—	—	—	—	0	0
Total	169,630	159,235	121,268	147,678	190,203	157,212	177,527	5	5	3	7	5	5	5

[a] Includes harvest and hunt activity on antlerless licences offered to some either-sex mule deer licence holders.
[b] Total 1st and 2nd licence hunting activity.
[c] Two licences were offered in the Forest between 1982 and 1984 but hunter days per licence type could not be separated.

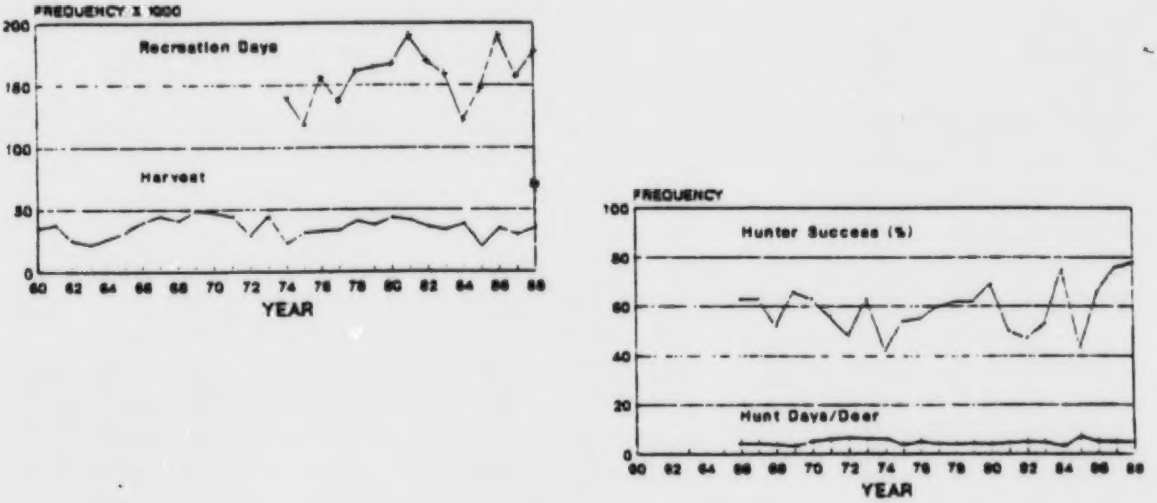


Fig. 3. Provincial harvest and hunt activity, 1960 to 1988.

each respective weapon type (Table 5). The one licence system introduced in 1987, making the either-sex licence valid for all season dates, provided hunters use the required weapon, continued to be popular among sport hunters.

3. Rifle Season Harvest

- The Grassland rifle harvest of 5,670 deer was slightly higher than 1987 and remained above the long-term average for the 1980's (Tables 6 and 7). The highest harvest occurred in WMZ 3, 2, 1, 6, 14 and 9 with over 500 deer taken in each zone. These zones support the best deer populations in the Grassland ecozone and although harvests fluctuate between years, these areas consistently comprise the highest percentage of the harvest.

Table 7. Grassland and Farmland either-sex white-tailed deer rifle harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
01	711	1,003	678	95.36	678	7.18:1:0.53	2,179	3.21	0.2618
02	724	1,021	747	100.00	747	7.26:1:0.32	2,137	2.86	0.2008
03	133	188	101	75.94	101	8.50:1:1.50	395	3.91	0.0919
04	698	985	751	100.00	751	3.60:1:0.09	1,977	2.63	0.2435
05	471	664	472	100.00	472	5.53:1:0.33	1,335	2.83	0.2237
06	614	866	582	94.79	582	3.92:1:0.38	2,094	3.60	0.4991
07	172	243	142	82.56	142	3.83:1:0.33	485	3.42	0.2559
08	133	188	96	72.18	96	2.60:1:0.60	328	3.42	0.0966
09	588	829	554	94.22	554	4.62:1:0.14	1.627	2.94	0.4736
10	477	673	403	84.49	403	5.38:1:0.38	1,240	3.08	0.3496
11	182	256	137	75.27	137	13.00:1:1.00	488	3.56	0.4954
12	104	147	78	75.00	78	7.50:1:0.00	326	4.18	0.9476
13	396	559	357	90.15	357	3.56:1:0.31	1.018	2.85	0.2492
14	633	893	573	90.52	573	2.11:1:0.18	1,772	3.09	0.3175
Total	6.036	8,514	5,670	93.94	5,670	4.47:1:0.29	17,400	3.07	0.2685
Farmland									
15	842	1,301	921	100.00	921	2.96:1:0.32	2,594	2.82	0.3857
16	768	1,186	696	90.63	696	4.37:1:0.26	2,449	3.52	0.4614
17	780	1,205	692	88.72	692	3.09:1:0.23	2,769	4.00	0.7243
18	812	1,255	751	92.49	751	3.22:1:0.33	2,099	2.79	0.2818
19	495	765	472	95.35	472	4.16:1:0.26	1,360	2.88	0.1474
20	412	637	307	74.51	307	3.64:1:0.14	1,461	4.76	0.2640
21	851	1,314	705	82.84	705	3.61:1:0.35	3,290	4.67	0.3925
22	320	495	238	74.38	238	2.92:1:0.08	1,276	5.36	0.2696
23	377	582	344	91.25	344	3.18:1:0.24	1,501	4.36	0.2614
24	314	485	243	77.39	243	9.40:1:0.20	1,183	4.87	0.2449
25	344	531	279	81.10	279	5.44:1:0.33	1,153	4.13	0.1981
26	246	380	224	91.06	224	4.11:1:0.33	915	4.08	0.2072
27	267	412	215	80.52	215	5.00:1:0.71	873	4.06	0.1776
28	273	421	229	83.88	229	2.29:1:0.29	1,027	4.48	0.7579
29	759	1,172	540	71.15	540	3.32:1:0.40	2,880	5.33	0.5400
30	943	1,456	669	70.94	669	2.29:1:0.27	3,645	5.45	0.5026
Total	8.803	13,598	7,525	85.48	7,525	3.42:1:0.29	30,475	4.05	0.3355

Table 8. Parkland and Forest Fringe white-tailed deer rifle harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km^2 In Zone
Parkland									
31	639	939	618	96.71	618	2.41:1:0.24	2,014	3.26	0.7985
32	829	1,218	829	100.00	829	1.93:1:0.14	2,391	2.88	0.8569
33	654	962	545	83.33	545	4.05:1:0.36	2,147	3.94	0.5529
34	795	1,168	719	90.44	719	5.64:1:0.50	3,105	4.32	0.5764
35	542	797	513	94.65	513	2.64:1:0.36	2,030	3.96	0.7765
36	682	1,003	504	73.90	504	3.08:1:0.15	2,413	4.79	0.4653
37	1,471	2,162	1,420	96.53	1,420	5.09:1:0.51	6,670	4.70	0.5894
38	524	769	298	56.87	298	30.50:1:1.00	2,037	6.84	0.3176
39	957	1,406	838	87.57	838	6.52:1:0.43	4,018	4.79	0.5284
40	467	687	339	72.59	339	2.04:1:0.17	2,110	6.22	0.3897
41	810	1,191	655	80.86	655	2.76:1:0.44	3,464	5.29	0.4803
42	714	1,049	559	78.29	559	3.42:1:0.67	3,308	5.92	0.4462
43	346	508	261	75.43	261	4.56:1:0.78	1,452	5.56	0.2142
44	770	1,131	591	76.75	591	4.32:1:0.55	2,894	4.90	0.6322
45	929	1,365	774	83.32	774	2.78:1:0.45	3,958	5.11	0.5163
46	1,022	1,502	953	93.25	953	2.59:1:0.49	4,827	5.07	0.8100
47	879	1,292	737	83.85	737	3.29:1:0.44	3,718	5.04	0.6501
Total	13,030	19,149	11,152	85.59	11,152	3.45:1:0.39	52,555	4.71	0.5338
Forest Fringe									
48	266	412	174	65.41	174	6.40:1:0.20	1,149	6.60	0.4539
49	239	371	160	66.95	160	3.29:1:0.71	1,164	7.28	0.4860
50	331	513	238	71.90	238	1.78:1:0.11	1,445	6.07	0.4335
51	251	389	169	67.33	169	3.13:1:0.50	1,127	6.67	0.3922
52	432	669	330	76.39	330	5.30:1:0.90	1,755	5.32	0.6024
53	390	605	385	98.72	385	2.76:1:0.24	1,611	4.18	0.5811
54	831	1,287	866	100.00	866	3.53:1:0.45	3,667	4.23	0.6437
55	337	522	325	96.44	325	3.71:1:0.36	1,390	4.28	0.3707
Total	3,078	4,768	2,647	86.00	2,647	3.38:1:0.40	13,306	5.03	0.5066

- The Farmland rifle harvest of 7,525 deer was significantly higher than 1987 but continued to be well below the long-term average as well as harvest levels from the early 1980's that exceeded 10,000 deer annually (Tables 6 and 7). Habitat loss continues to be a major factor limiting population growth and consequently, harvest levels in many Farmland zones. WMZ 15, 18, 21, 16, 17 and 30 supported the highest harvests with over 600 deer taken in each zone. These harvests represented a slight change from 1987 by declining in WMZ 19 and 29 and increasing in WMZ 16, 17 and 21. The latter 3 zones were impacted to varying degrees by the 1984-85 severe winter, but populations have improved and these zones again supported a high percentage of the Farmland harvest.
- The Parkland rifle harvest of 11,152 deer was also significantly higher than 1987 and similar to the high harvest levels characteristic of the early 1980's (Tables 6 and 8). Most Parkland zones have experienced an increase in populations as a result of several mild winters. Higher deer populations have resulted in an increased sport harvest but some of the harvest has shifted away from traditional areas in southeastern

Saskatchewan to central and northwestern Parkland zones. WMZ 37, 46, 39, 32, 45, 47 and 34 represented the highest harvest zones in the Parkland area with over 700 deer taken in each zone.

- The Forest Fringe rifle harvest of 2,647 deer was slightly higher than 1987 and similar to harvests reported since 1984, when revision of the WMZ structure created this particular ecozone (Tables 6 and 8). The highest harvest occurred in WMZ 54, 53, 52 and 55 located near Prince Albert and Meadow Lake.
- The Forest rifle harvest of 7,358 deer was substantially higher than 1987 and the highest harvest on record in the past decade (Tables 6 and 9). Liberalized season dates and a licence limit were implemented in most Forest zones as a result of above normal deer populations and contributed to the higher harvest estimates. WMZ 56, 59 and 67 represented the preferred hunting locations with over 1,000 deer taken in each zone.

Table 9. Forest 1st and 2nd licence white-tailed deer rifle harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1st Regular									
56	1,052	1,630	605	57.51	605	1.57:1:0.30	5,344	8.83	1.1305
57	556	861	366	65.83	366	1.92:1:0.28	2,878	7.86	0.8700
58	242	376	160	66.12	160	1.07:1:0.27	1,076	6.73	0.4792
59	910	1,411	673	73.96	673	2.68:1:0.65	4,649	6.91	0.7930
60	334	518	270	80.84	270	2.18:1:0.29	1,713	6.34	0.4464
61	95	147	46	48.42	46	4.00:1:0.00	525	11.41	0.1726
62	163	252	110	67.48	110	4.75:1:0.25	796	7.24	0.2131
63	293	453	151	51.54	151	2.22:1:0.44	1,151	7.62	0.2033
64	112	174	46	41.07	46	2.33:1:0.00	417	9.07	0.1176
65	33	50	14	42.42	14	0.50:1:0.00	140	10.00	0.0214
66	157	243	101	64.33	101	3.00:1:0.40	808	8.00	0.0716
67	860	1,333	632	73.49	632	2.11:1:0.53	3,896	6.16	0.4491
68	278	431	137	49.28	137	2.86:1:0.43	1,251	9.13	0.3008
69	189	293	142	75.13	142	1.90:1:0.20	949	6.68	0.1224
70	12	18	9	75.00	9	9.16:1:0.00	69	7.67	0.0081
72	6	9	0	0.00	0	0.00:1:0.00	14	0.00	0.0007
73	15	23	14	93.33	14	13.74:1:0.00	64	4.57	0.0013
Total	5,307	8,221	3,476	65.50	3,476	2.11:1:0.39	25,737	7.40	0.1558
2nd Regular									
56	1,243	1,382	853	68.62	853	2.20:1:0.60	3,852	4.52	0.8148
57	575	639	394	68.52	394	1.88:1:0.28	1,922	4.88	0.5810
58	323	359	205	63.47	205	1.83:1:0.58	1,192	5.81	0.5309
59	902	1,003	604	66.96	604	2.92:1:0.73	2,838	4.70	0.4841
60	355	394	264	74.37	264	1.41:1:0.71	1,195	4.53	0.3114
61	85	95	60	70.59	60	3.00:1:0.00	230	3.83	0.0756
62	144	160	105	72.92	105	2.00:1:0.50	399	3.80	0.1068
63	233	259	125	53.65	125	3.20:1:0.80	639	5.11	0.1129
64	94	105	55	58.51	55	7.00:1:3.00	260	4.73	0.0733
65	18	20	5	27.78	5	4.99:1:0.00	40	8.00	0.0061
66	153	170	95	62.09	95	0.89:1:0.22	534	5.62	0.0473
67	938	1,043	694	73.99	694	2.97:1:0.67	3,109	4.48	0.3583
68	283	314	230	81.27	230	5.33:1:1.33	1,021	4.44	0.2455
69	238	264	195	81.93	195	1.50:1:0.29	716	3.67	0.0923
Total	5,584	6,208	3,882	69.52	3,882	2.33:1:0.58	17,947	4.62	0.1086

4. Selective Harvest Strategies

- Although the majority of the whitetail zones have either-sex season structures, special selective harvest strategies were implemented in WMZ 6, 11 and 14, 37, 38 and 39 in 1988 to either reduce populations by increasing the antlerless segment of the harvest or increase populations by protecting breeding female deer, depending on the particular zone.
- In WMZ 6, an antlerless harvest was required to reduce populations that were depredating on landowner haystacks and field crops. Approximately 35% of the eligible WMZ 6 mule deer licence holders purchased antlerless whitetail licences for the November 7 to 19, 1988 season dates and harvested 100 animals (Table 10), a decrease from 338 deer harvested in 1986 when the season was first implemented. Although the interest in antlerless whitetails is not very high, local landowners indicate that the small harvest is controlling antlerless deer populations in the problem depredation areas. In comparison, the 1988 either-sex harvest of 582 deer remained similar to 1987, with a harvest structure of 3.9 bucks:doe, slightly less than the Grassland average of 4.5 bucks:doe (Table 7).
- A special subzone was created in the western portion of WMZ 11 and 14 in 1987 to reduce antlerless deer populations that were depredating on irrigated alfalfa crops along the South Saskatchewan and Red Deer River systems. Antlerless licences were available to all WMZ 11 and 26 mule deer licence holders for the archery, muzzleloader and November 7 to 19 rifle season dates. The antlerless harvest was 97 deer (Table 10), up from 26 deer in 1987, but harvests will still need to increase if field crop damage is to be reduced to a manageable level along the two river systems.

Table 10. Antlerless licence white-tailed deer rifle harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
06	110	117	100	90.91	100	0.05:1:0.38	217	2.17	0.0517
11	62	66	42	67.74	42	0.00:1:0.57	108	2.57	0.1096
14	98	104	55	56.12	55	0.00:1:0.93	226	4.11	0.0405
Total	270	287	197	72.96	197	0.03:1:0.55	550	2.79	0.0084

- In WMZ 37, a one week bucks, only and one week either-sex harvest strategy was implemented in 1985, in an effort to increase deer numbers by protecting mature does or the breeding segment of the population. Overall harvest initially declined as a result of the restriction, but increased to 1,420 deer in 1988, in response to good fawn production and low mortality following several mild winters (Table 11). With growing populations, more antlerless deer were harvested during the second week of the season so that the 1988 harvest structure of 5.1 bucks:doe was only slightly higher than the Parkland average of 3.5 bucks:doe (Table 8). Biological information and field reports indicate that, in conjunction with mild winters, the selective harvest structure has helped populations to grow and that a bucks, only component to the season structure is no longer required.

- A similar selective harvest strategy was implemented in WMZ 39 in 1987, in response to higher harvest levels, caused by an influx of hunters that had traditionally hunted in WMZ 37 and southeastern Saskatchewan. However, with only 338 deer harvested in 1988, the WMZ 39 harvest has returned to levels that existed prior to the implementation of the selective harvest strategy (Table 11). The 1988 harvest structure of 6.5 bucks:doe was higher than the Parkland average (Table 8). However, populations have increased as a result of mild winters and continuation of the selective harvest strategy will have minimal impact on population growth.

Table 11. White-tailed deer regular rifle harvest for the highest harvest zones[a] in Saskatchewan, 1984 to 1988.

WMZ	1984	1985	1986	1987	1988	WMZ	1984	1985	1986	1987	1988
01	758	485	582	562	678	33	1,174	365	439	366	545
02	792	410	593	622	747	34	1,277	310	804	366	719
04	627	475	720	685	751	35	633	155	693	340	513
06	821	410	900	592	582	37	832	525	1,593	995	1,420
14	804	400	1,032	540	573	39	855	485	1,318	411	838
15	1,037	650	789	511	921	41	633	485	460	696	655
16	1,174	410	397	237	696	42	559	395	683	714	559
17	633	225	534	285	692	44	946	455	603	533	591
18	889	485	704	385	751	45	832	445	699	796	774
19	849	320	741	474	472	46	844	585	1,058	1,036	953
21	1,157	560	587	570	705	47	650	470	418	581	737
23	627	245	545	359	344	54	581	380	603	625	866
29	901	600	688	592	540	56[b]	1,231	320	836	1,172	1,458
30	1,265	565	778	581	669	59[c]	755	265	831	1,171	1,277
31	952	640	714	352	618	67[d]	1,147	345	503	1,161	1,326
32	2,041	915	704	444	829						

[a] WMZ with more than 600 deer harvested during the regular rifle season, based on 1984 figures.

[b,c,d] Both a 1st and 2nd regular either-sex licence available in 1984, 1987 and 1988.

- In WMZ 38, a bucks only harvest strategy has been in effect since 1985, to reduce overall sport harvest and protect breeding does contributing to population growth. Harvest has fluctuated between 175 and 298 deer annually, and in conjunction with the mild winters, the strategy has contributed to population recovery (Table 8). Biological information and field reports indicate that populations have recovered to a point that the bucks, only harvest strategy is no longer required.

5. Primitive Weapons Season Harvest

- During the archery season, 2,483 hunters harvested 718 deer for a success rate of 29%, compared to 2,146 hunters who harvested 554 deer for a success rate of 26% in 1987 (Tables 12 to 14). Hunter days/animal

Table 12. Grassland and Farmland white-tailed deer archery harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km^2 In Zone
Grassland									
01	39	60	0	0.00	0	0.00:1:0.00	247	0.00	0.0296
02	39	60	0	0.00	0	0.00:1:0.00	229	0.00	0.0215
04	33	50	23	69.70	23	4.00:1:0.00	185	8.04	0.0227
05	39	60	9	23.08	9	9.16:1:0.00	147	16.33	0.0246
06	55	82	32	58.18	32	32.06:1:0.00	252	7.88	0.0600
07	9	14	0	0.00	0	0.00:1:0.00	32	0.00	0.0168
08	18	27	9	50.00	9	0.00:1:0.00	106	11.78	0.0312
09	39	60	18	46.15	18	3.00:1:0.00	168	9.33	0.0489
10	97	147	27	27.84	27	5.00:1:0.00	517	19.15	0.1457
11	6	9	5	83.33	5	0.00:1:0.00	48	9.60	0.0487
12	27	41	5	18.52	5	4.58:1:0.00	133	26.60	0.3866
13	109	165	9	8.26	9	9.16:1:0.00	584	64.89	0.1429
14	131	197	64	48.85	64	1.17:1:0.17	824	12.88	0.1476
Total	644	971	202	31.37	202	2.58:1:0.08	3,472	17.19	0.0535
Farmland									
15	58	87	9	15.52	9	1.00:1:0.00	270	30.00	0.0401
16	36	55	5	13.89	5	4.58:1:0.00	147	29.40	0.0276
17	58	87	0	0.00	0	0.00:1:0.00	220	0.00	0.0575
18	85	128	41	48.24	41	0.60:1:0.20	487	11.88	0.0653
19	43	64	14	32.56	14	13.74:1:0.00	295	21.07	0.0319
20	185	279	41	22.16	41	3.00:1:0.50	1,099	26.80	0.1985
21	52	78	9	17.31	9	9.16:1:0.00	321	35.67	0.0382
22	15	23	9	60.00	9	1.00:1:0.00	55	6.11	0.0116
23	43	64	9	20.93	9	9.16:1:0.00	206	22.89	0.0358
24	33	50	14	42.42	14	2.00:1:0.00	215	15.36	0.0445
25	21	32	14	66.67	14	1.00:1:1.00	110	7.86	0.0189
26	9	14	0	0.00	0	0.00:1:0.00	60	0.00	0.0135
27	6	9	0	0.00	0	0.00:1:0.00	37	0.00	0.0075
28	15	23	5	33.33	5	4.58:1:0.00	77	15.40	0.0568
29	52	78	23	44.23	23	3.00:1:1.00	280	12.17	0.0525
30	158	238	41	25.95	41	2.50:1:1.00	894	21.80	0.1232
Total	869	1,310	234	26.93	234	2.21:1:0.43	4,770	20.38	0.0525

Table 13. Parkland and Forest Fringe white-tailed deer archery harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Parkland									
31	76	101	23	30.26	23	22.90:1:0.00	380	16.52	0.1506
32	34	46	18	52.94	18	0.50:1:0.50	142	7.89	0.0508
33	14	18	14	100.00	14	2.00:1:0.00	46	3.29	0.0118
34	41	55	18	43.90	18	18.32:1:0.00	169	9.39	0.0313
35	31	41	5	16.13	5	4.58:1:0.00	124	24.80	0.0474
36	21	27	5	23.81	5	0.00:1:0.00	101	20.20	0.0194
37	124	165	14	11.29	14	2.00:1:0.00	600	42.86	0.0530
38	14	18	0	0.00	0	0.00:1:0.00	69	0.00	0.0107
39	65	87	18	27.69	18	18.32:1:0.00	348	19.33	0.0457
40	3	5	0	0.00	0	0.00:1:0.00	28	0.00	0.0051
41	52	69	5	9.62	5	0.00:1:0.00	284	56.80	0.0393
42	34	46	14	41.18	14	0.00:1:2.00	220	15.71	0.0296
43	27	37	0	0.00	0	0.00:1:0.00	133	0.00	0.0196
44	7	9	0	0.00	0	0.00:1:0.00	41	0.00	0.0089
45	31	41	9	29.03	9	9.16:1:0.00	142	15.78	0.0185
46	48	64	9	18.75	9	1.00:1:0.00	211	23.44	0.0354
47	10	14	9	90.00	9	1.00:1:0.00	23	2.56	0.0040
Total	632	843	160	25.32	160	2.56:1:0.33	3,060	19.13	0.0310
Forest Fringe									
48	12	18	5	41.67	5	4.58:1:0.00	69	13.80	0.0272
50	15	23	5	33.33	5	4.58:1:0.00	77	15.40	0.0231
51	12	18	0	0.00	0	0.00:1:0.00	46	0.00	0.0160
52	9	14	0	0.00	0	0.00:1:0.00	31	0.00	0.0106
53	27	41	5	18.52	5	4.58:1:0.00	148	29.60	0.0533
54	24	37	14	58.33	14	9.16:1:4.58	58	4.14	0.0101
55	12	18	9	75.00	9	1.00:1:0.00	51	5.67	0.0136
Total	112	169	37	33.04	37	6.00:1:1.00	478	12.92	0.0182

Table 14. Forest 1st and 2nd licence white-tailed deer archery harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1st Regular									
56	50	73	14	28.00	14	0.50:1:0.00	248	17.71	0.0524
57	12	18	5	41.67	5	4.58:1:0.00	37	7.40	0.0111
58	9	14	5	55.56	5	4.58:1:0.00	43	8.60	0.0191
59	19	27	5	26.32	5	4.58:1:0.00	105	21.00	0.0179
60	6	9	0	0.00	0	0.00:1:0.00	18	0.00	0.0046
62	3	5	5	100.00	5	0.00:1:0.00	18	3.60	0.0048
63	9	14	0	0.00	0	0.00:1:0.00	69	0.00	0.0121
64	3	5	0	0.00	0	0.00:1:0.00	18	0.00	0.0050
66	9	14	5	55.56	5	4.58:1:0.00	37	7.40	0.0032
67	22	32	9	40.91	9	4.58:1:4.58	87	9.67	0.0100
68	12	18	5	41.67	5	4.58:1:0.00	60	12.00	0.0144
Total	156	229	50	32.05	50	2.33:1:0.33	740	14.80	0.0044
2nd Regular									
56	13	15	10	76.92	10	1.00:1:0.00	47	4.70	0.0099
59	4	5	5	100.00	5	0.00:1:0.00	5	1.00	0.0008
60	4	5	0	0.00	0	0.00:1:0.00	15	0.00	0.0039
63	13	15	5	38.46	5	4.99:1:0.00	14	2.80	0.0024
64	4	5	0	0.00	0	0.00:1:0.00	5	0.00	0.0014
66	4	5	0	0.00	0	0.00:1:0.00	30	0.00	0.0026
67	9	10	5	55.56	5	4.99:1:0.00	15	3.00	0.0017
68	13	15	5	38.46	5	4.99:1:0.00	65	13.00	0.0156
69	4	5	5	100.00	5	4.99:1:0.00	10	2.00	0.0012
Total	70	80	35	50.00	35	2.50:1:0.00	205	5.86	0.0012

declined slightly from 19 days in 1987 to 18 days in 1988, although most archers only spent approximately 5 days actively hunting. The archery harvest structure from the hunter questionnaire survey information was 2.50 bucks:doe:0.30 fawns and indicated a slight increase in the proportion of bucks taken in the harvest compared to recent years. The Farmland ecozone received the heaviest harvest pressure, followed closely by the Grassland ecozone. Archers accounted for 7% of the total days spent in the field by all whitetail hunters in 1988 (Table 5).

- During the muzzleloader season, 1,746 hunters harvested 643 deer for a success rate of 37%, compared to 1,451 hunters who harvested 536 deer with a similar success rate in 1987 (Tables 15 to 18). Hunter days/animal increased slightly from 10 days in 1987 to 11 days in 1988, although most muzzleloader hunters only spent approximately 4 days in the field. The harvest structure was 2.30 bucks:doe:0.55 fawns and indicated that more bucks and fawns and fewer does were harvested than in last several years. The Farmland, Parkland and Grassland received the heaviest hunting pressure, respectively. Muzzleloader hunters accounted for only 4% of the total days spent in the field by all whitetail hunters.
- Based on a 18% increase in primitive weapon hunters and a 24% increase in their harvest, it appears that this form of hunting may becoming more popular with sport hunters and that with the 1987 change to the licencing structure, some traditional rifle hunters are taking advantage of the additional recreation. However, over 90% of whitetail hunters continue to use a rifle as their preferred weapon type and consequently, hunt during the November season dates.

Table 15. Grassland white-tailed deer muzzleloader harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km^2 In Zone
01	56	78	27	48.21	27	5.00:1:0.00	188	6.96	0.0225
02	56	78	23	41.07	23	4.00:1:0.00	226	9.83	0.0212
03	3	5	0	0.00	0	0.00:1:0.00	5	0.00	0.0011
04	20	27	18	90.00	18	1.00:1:2.00	64	3.56	0.0078
05	26	37	9	34.62	9	9.16:1:0.00	93	10.33	0.0155
06	46	64	18	39.13	18	18.32:1:0.00	211	11.72	0.0502
08	7	9	0	0.00	0	0.00:1:0.00	18	0.00	0.0053
09	29	41	9	31.03	9	1.00:1:0.00	128	14.22	0.0372
10	39	55	18	46.15	18	1.00:1:0.00	123	6.83	0.0346
11	7	9	0	0.00	0	0.00:1:0.00	9	0.00	0.0091
12	16	23	5	31.25	5	0.00:1:0.00	66	13.20	0.1918
13	56	78	18	32.14	18	1.00:1:0.00	247	13.72	0.0604
14	39	55	27	69.23	27	2.00:1:0.00	147	5.44	0.0263
Total	398	559	174	43.72	174	2.27:1:0.18	1,525	8.76	0.0235

Table 16. Farmland white-tailed deer muzzleloader harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
15	17	23	5	29.41	5	4.58:1:0.00	83	16.60	0.0123
16	17	23	5	29.41	5	0.00:1:0.00	101	20.20	0.0190
17	7	9	5	71.43	5	0.00:1:4.58	41	8.20	0.0107
18	38	50	14	36.84	14	4.58:1:9.16	151	10.79	0.0202
19	28	37	9	32.14	9	1.00:1:0.00	101	11.22	0.0109
20	117	156	37	31.62	37	5.00:1:2.00	412	11.14	0.0744
21	38	50	5	13.16	5	0.00:1:0.00	169	33.80	0.0201
22	21	27	5	23.81	5	0.00:1:0.00	41	8.20	0.0086
23	45	60	18	40.00	18	18.32:1:0.00	160	8.89	0.0278
24	24	32	14	58.33	14	2.00:1:0.00	96	6.86	0.0198
25	14	18	5	35.71	5	4.58:1:0.00	55	11.00	0.0094
26	24	32	5	20.83	5	4.58:1:0.00	96	19.20	0.0217
27	7	9	0	0.00	0	0.00:1:0.00	18	0.00	0.0036
28	24	32	18	75.00	18	1.00:1:2.00	64	3.56	0.0472
29	76	101	23	30.26	23	18.32:1:4.58	340	14.78	0.0637
30	135	179	50	37.04	50	0.80:1:0.40	639	12.78	0.0881
Total	632	838	215	34.02	215	2.08:1:0.83	2,568	11.94	0.0282

Table 17. Parkland and Forest Fringe white-tailed deer muzzleloader harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Parkland									
31	29	41	5	17.24	5	4.58:1:0.00	165	33.00	0.0654
32	23	32	5	21.74	5	4.58:1:0.00	69	13.80	0.0247
33	23	32	9	39.13	9	1.00:1:0.00	115	12.78	0.0296
34	42	60	23	54.76	23	4.00:1:0.00	227	9.87	0.0421
35	23	32	23	100.00	23	3.00:1:1.00	110	4.78	0.0420
36	39	55	5	12.82	5	4.58:1:0.00	128	25.60	0.0246
37	72	101	18	25.00	18	3.00:1:0.00	330	18.33	0.0291
38	29	41	0	0.00	0	0.00:1:0.00	92	0.00	0.0143
39	33	46	5	15.15	5	0.00:1:4.58	156	31.20	0.0205
40	23	32	0	0.00	0	0.00:1:0.00	92	0.00	0.0169
41	26	37	18	69.23	18	13.74:1:4.58	73	4.06	0.0101
42	26	37	14	53.85	14	13.74:1:0.00	78	5.57	0.0105
43	3	5	0	0.00	0	0.00:1:0.00	14	0.00	0.0020
44	20	27	5	25.00	5	4.58:1:0.00	60	12.00	0.0131
45	23	32	0	0.00	0	0.00:1:0.00	96	0.00	0.0125
46	20	27	9	45.00	9	0.00:1:1.00	112	12.44	0.0187
Total	454	637	137	30.18	137	4.20:1:0.80	1,916	13.99	0.0194
Forest Fringe									
48	16	23	9	56.25	9	9.16:1:0.00	61	6.78	0.0241
50	7	9	5	71.43	5	4.58:1:0.00	18	3.60	0.0054
51	16	23	5	31.25	5	0.00:1:0.00	69	13.80	0.0240
52	23	32	5	21.74	5	0.00:1:0.00	55	11.00	0.0188
53	7	9	5	71.43	5	4.58:1:0.00	18	3.60	0.0064
54	16	23	9	56.25	9	0.00:1:00.0	41	4.56	0.0071
55	7	9	0	0.00	0	0.00:1:0.00	28	0.00	0.0074
Total	91	128	37	40.66	37	1.00:1:0.00	290	7.84	0.0110

Table 18. Forest 1st and 2nd licence white-tailed deer muzzleloader harvest, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1st Regular									
56	29	41	14	48.28	14	0.00:1:13.74	102	7.29	0.0215
57	10	14	9	90.00	9	9.16:1:0.00	32	3.56	0.0096
58	7	9	0	0.00	0	0.00:1:0.00	23	0.00	0.0102
59	16	23	18	100.00	18	3.00:1:0.00	41	2.28	0.0069
60	3	5	0	0.00	0	0.00:1:0.00	9	0.00	0.0023
63	13	18	5	38.46	5	0.00:1:4.58	69	13.80	0.0121
64	7	9	0	0.00	0	0.00:1:0.00	14	0.00	0.0039
67	23	32	5	21.74	5	0.00:1:4.58	60	12.00	0.0069
68	10	14	5	50.00	5	4.58:1:0.00	60	12.00	0.0144
69	3	5	5	100.00	5	0.00:1:0.00	14	2.80	0.0018
Total	121	169	60	49.59	60	3.00:1:2.50	423	7.05	0.0025
2nd Regular									
56	15	15	0	0.00	0	0.00:1:0.00	35	0.00	0.0074
60	5	5	0	0.00	0	0.00:1:0.00	5	0.00	0.0013
62	5	5	5	100.00	5	4.99:1:0.00	35	7.00	0.0093
63	10	10	5	50.00	5	0.00:1:0.00	10	2.00	0.0017
66	5	5	5	100.00	5	0.00:1:0.00	5	1.00	0.0004
67	10	10	5	50.00	5	4.99:1:0.00	20	4.00	0.0023
Total	50	50	20	40.00	20	1.00:1:0.00	110	5.50	0.0006

6. Provincial Harvest Structure

a) Hunter Questionnaire Survey

- The 1988 provincial harvest structure was estimated to be 3.15 bucks:doe:0.39 fawns and represents the highest buck to doe ratio in the harvest for the past decade (Table 19). Fawn to doe ratios were similar to both 1986 and 1987, but higher than 1985. Populations in that year may have experienced high preseason fawn mortality because of the poor physical condition of pregnant does, following the 1984-85 severe winter in southern Saskatchewan.
- High buck to doe ratios, ranging from 3.32 to 3.84 bucks:doe, were reported for all but the Forest and Northern Shield ecozones. The large buck harvest, particularly in the yearling and 2.5 year old age classes, suggested that mild winters over the past several years have contributed to higher fawn survival and growing populations. Given the opportunity, Saskatchewan hunters select for bucks and harvest young age class animals relative to their abundance in the population.
- The Grassland ecozone supported the highest ratio at 3.84 bucks:doe, significantly higher than 2.80 bucks:doe reported in 1987, but consistent with high ratios evident in the harvest structure from the 1970's and early 1980's. With a harvest structure of 3.44 bucks:doe, the Parkland harvest also included a large number of bucks, similar to ratios observed prior to high fawn and yearling mortality during the

Table 19. Provincial white-tailed deer harvest structure, 1985 to 1988[a].

	1985 Harvest Ratio Males:Females:Young	1986 Harvest Ratio Males:Females:Young	1987 Harvest Ratio Males:Females:Young	1988 Harvest Ratio Males:Females:Young
Grassland	3.40:1:0.21	2.07:1:0.39	2.80:1:0.35	3.84:1:0.30
Farmland	1.93:1:0.32	2.00:1:0.33	3.05:1:0.34	3.33:1:0.32
Parkland	2.01:1:0.37	3.07:1:0.48	3.11:1:0.47	3.44:1:0.40
Forest Fringe	2.42:1:0.26	2.40:1:0.38	2.74:1:0.58	3.32:1:0.91
Forest	2.43:1:0.31	2.30:1:0.38	2.34:1:0.40	2.22:1:0.49
Northern Shield	0.00:1:0.00	0.00:1:0.00	0.00:1:0.00	0.00:1:0.00
Provincial Total	2.26:1:0.32	2.38:1:0.40	2.81:1:0.41	3.15:1:0.39

[a] Special seasons that influence the either-sex harvest structure:
1988 - Antlerless WMZ 6, 11 & 14 (Grassland); antlered WMZ 37, 38 & 39 (Parkland)
1987 - Antlerless WMZ 2, 6, 11 & 14 (Grassland); antlered WMZ 37, 38 & 39 (Parkland)
1986 - Antlerless WMZ 2 & 6 (Grassland); antlered WMZ 37 & 38 (Parkland)
1985 - Antlerless WMZ 31 & 32 (Parkland); antlered WMZ 37 & 38 (Parkland).

1984-85 severe winter. The Farmland harvest indicated a similar increase in buck to doe ratios as the Parkland ecozone, increasing from 1.93 to 3.33 bucks:doe in the 4 year period between 1985 and 1988. At 2.22 bucks:doe, the Forest harvest ratio was similar to previous years, but this ecozone has traditionally supported a smaller buck harvest than more southern areas of the province.

- In the Grassland, Farmland and Parkland ecozones, fawn to doe ratios ranged from 0.30 to 0.40 fawns:doe and were slightly lower than harvest ratios reported from 1986 or 1987. However, in view of the higher buck harvest, it was expected that fewer fawns would be taken by sport hunters, despite good fawn production and growing populations. Fawns comprised a larger proportion of the Forest Fringe and Forest deer harvest, but bucks are generally harder to locate in forest habitat and hunters, consequently, shoot more antlerless animals.

b) **Biological Sample Collection Program**

- In 1988, the lower jaw collection program, implemented largely on a volunteer basis by members from 78 branches of the Saskatchewan Wildlife Federation and other wildlife interest groups, produced a provincial sample of 2,663 whitetail jaws of known sex and age class. Each branch was paid $5.00 for each usable sample in an effort to obtain more complete information on the sex and age structure of the provincial deer harvest.
- The 1988 provincial harvest structure was estimated to be 3.68 bucks:doe:0.69 fawns compared to 3.14 bucks:doe:0.79 fawns in 1987, 2.34 bucks:doe:0.92 fawns in 1986 and 1.15 bucks:doe:0.49 fawns in 1985. Although the buck to doe ratios from the jaw sample were slightly higher than the hunter questionnaire estimates, the ratios indicated a similar trend towards an increased buck harvest between 1985 and 1988. This higher buck harvest suggested that there were a greater proportion

of bucks in the live population during the 1988 hunting season. The fawn age class constituted a smaller portion of the 1988 sample. This trend was consistent with hunter questionnaire survey ratios that suggested that, as more bucks become available in the population, there is less demand for antlerless animals, particularly young of the year.

- In terms of percent harvest by age class, fawns comprised 13% of the provincial harvest, similar to 1984 and 1987, but significantly lower than 1985 and 1986 which followed the severe 1984-85 winter (Tables 20 and 21; Fig. 4). This particular winter resulted in high mortality on the 1984 fawn and yearling cohorts and subsequently, the 1985 and 1986 seasons put additional hunting pressure on other age classes, particularly fawns. Yearlings comprised 34% of the harvest in 1988, similar to 1987, but substantially higher than 1985 or 1986. This single age class accounts for the largest proportion of the harvest in most years and high fawn mortality associated with the severe 1984-85 winter and the 1985 harvest resulted in fewer yearlings being available to the sport hunter in these years. Mature bucks and does comprised 41% and 12% of the harvest, respectively, also a significant change from percentages of 26% and 35% observed after the 1984-85 winter.
- The information suggests that, with lower fawn and yearling mortality associated with mild winters in 1986 and 1987, recruitment into these age classes increased significantly and contributed to overall population growth. Hunters, once again, selected for bucks and shot yearling and mature animals relative to their abundance in the population. Antlerless animals were less preferred and consequently, their proportions in the harvest structure declined to more traditional levels. Harvest information from high density white-tailed deer habitat in southeastern Saskatchewan, WMZ 15 to 17 and 31 to 34 combined, indicated similar trends as the provincial harvest structure (Table 22, Fig. 5).

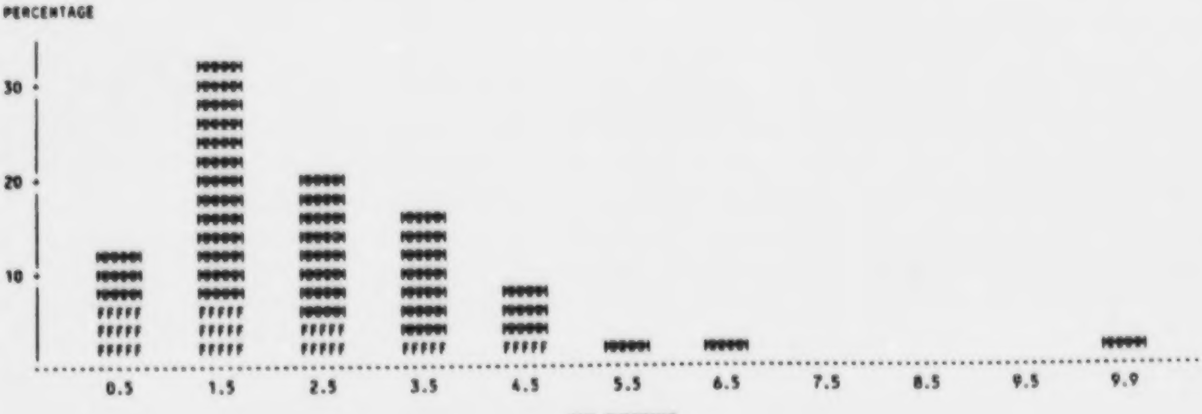
Table 20. Percent harvest by age class of white-tailed deer from lower jaw samples collected by the department and the Saskatchewan Wildlife Federation, 1984 to 1988[a].

Age Class	1984 S.E. Sask.[b]	1985 S.E. Sask.	1986 S.E. Sask.	1987 S.E. Sask.	1987 Province	1988 S.E. Sask.	1988 Province
% fawns	15%	21%	24%	14%	16%	11%	13%
% yearlings	27%	18%	28%	34%	35%	36%	34%
% mature bucks[c]	38%	26%	29%	37%	36%	39%	41%
% mature females[d]	20%	35%	20%	14%	13%	14%	12%
% mature deer[e]	58%	61%	48%	52%	49%	53%	53%
# samples	972	520	685	487	2,218	544	2,663

[a] Prior to 1986, jaw samples were collected only in southeastern Saskatchewan from department operated check stations located at Carlyle and Estevan.
[b] S.E. Sask. include WMZ 15, 16, 17, 31, 32, 33, 34 combined.
[c,d,e] Includes age classes 2.5+ years.

Table 21. Sex and age composition of the 1988 Saskatchewan white-tailed deer harvest from lower jaw samples.

SEX Frequency Percent Row Pct Col Pct	AGE 0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	99.9	Total
FEMALE	173 6.40 25.59 49.29	185 6.84 27.37 20.56	122 4.51 18.05 22.43	76 2.81 11.24 17.67	41 1.52 6.07 22.16	27 1.00 3.99 26.21	13 0.48 1.92 19.40	12 0.44 1.78 30.77	7 0.26 1.04 30.43	8 0.30 1.18 57.14	1 0.04 0.15 25.00	11 0.41 1.63 25.58	676 25.01
MALE	165 6.10 8.21 47.01	713 26.38 35.49 79.22	420 15.54 20.91 77.21	354 13.10 17.62 82.33	144 5.33 7.17 77.84	76 2.81 3.78 73.79	54 2.00 2.69 80.60	27 1.00 1.34 69.23	15 0.55 0.75 65.22	6 0.22 0.30 42.86	3 0.11 0.15 75.00	32 1.18 1.59 74.42	2009 74.32
UNKNOWN	13 0.48 72.22 3.70	2 0.07 11.11 0.22	2 0.07 11.11 0.37	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.04 5.56 4.35	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	18 0.67
Total	351 12.99	900 33.30	544 20.13	430 15.91	185 6.84	103 3.81	67 2.48	39 1.44	23 0.85	14 0.52	4 0.15	43 1.59	2703 100.00

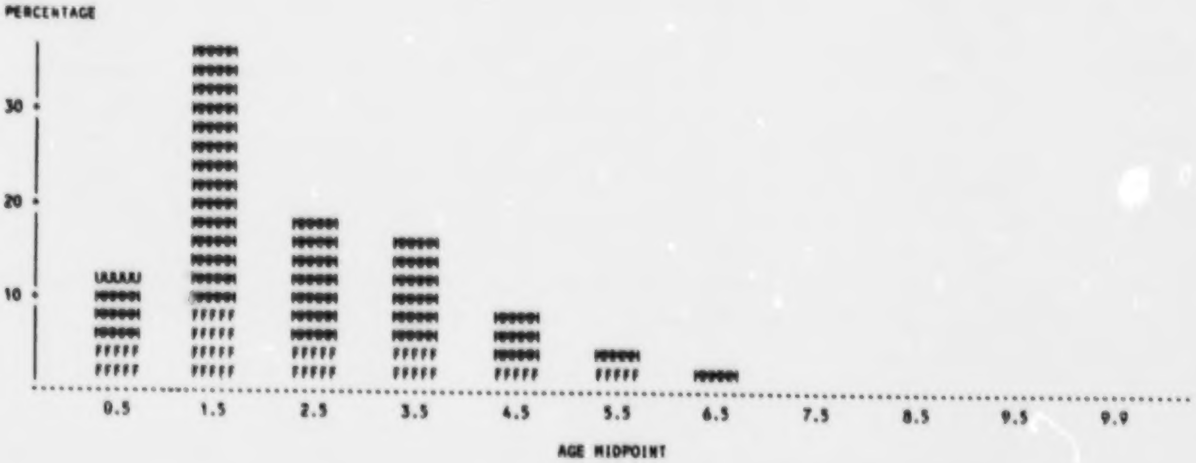


SYMBOL	SEX	SYMBOL	SEX
F	Female	M	Male

Fig. 4. Sex and age composition of the 1988 Saskatchewan white-tailed deer harvest from lower jaw samples.

Table 22. Sex and age composition of the 1988 white-tailed deer harvest in WMZ 15 to 17 and 31 to 34 from lower jaw samples.

SEX	AGE												
Frequency Percent Row Pct Col Pct	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	99.9	Total
FEMALE	25 4.58 17.73 40.98	42 7.69 29.79 21.76	19 3.48 13.48 19.59	17 3.11 12.06 19.77	11 2.01 7.80 26.19	11 2.01 7.80 47.83	4 0.73 2.84 21.05	5 0.92 3.55 55.56	5 0.92 3.55 50.00	2 0.37 1.42 66.67	0 0.00 0.00 0.00	0 0.00 0.00 0.00	141 25.82
MALE	29 5.31 7.34 47.54	149 27.29 37.72 77.20	78 14.29 19.75 80.41	69 12.64 17.47 80.23	31 5.68 7.85 73.81	12 2.20 3.04 52.17	15 2.75 3.80 78.95	4 0.73 1.01 44.44	4 0.73 1.01 40.00	1 0.18 0.25 33.33	1 0.18 0.25 100.00	2 0.37 0.51 100.00	395 72.34
UNKNOWN	7 1.28 70.00 11.48	2 0.37 20.00 1.04	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.18 10.00 10.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	10 1.83
Total	61 11.17	193 35.35	97 17.77	86 15.75	42 7.69	23 4.21	19 3.48	9 1.65	10 1.83	3 0.55	1 0.18	2 0.37	546 100.00



SYMBOL	SEX	SYMBOL	SEX	SYMBOL	SEX
F	Female	M	Male	U	Unknown

Fig. 5. Sex and age composition of the 1988 white-tailed deer harvest in WMZ 15 to 17 and 31 to 34 from lower jaw samples.

B. POPULATION STATUS

The status of the white-tailed deer population in Saskatchewan is determined annually from information provided by aerial density surveys, preseason wildlife observations, weather severity measurements, habitat condition evaluations, biological sample collections, deer necropsies, dead deer searches and field reports from the general public, landowners and department biological staff. Deviations from the established norm are examined to assess whether populations are changing because of management strategies or other environment factors.

1. Aerial Density Surveys

- Adequate snow cover and good observer visibility during the 1988-89 winter made it possible to conduct aerial surveys and estimate deer densities on some traditional survey blocks in southern Saskatchewan. Most survey blocks had not been flown since 1986 because of intermittent snow cover resulting from mild temperatures and low precipitation during the past several winters (Table 23).
- Surveys were conducted in the Parkland ecozone, specifically WMZ 31 (Souris), 32 (Alida), 34 (Moosomin), 37 (Wroxton) and 42 (Pleasantdale). New surveys were also flown in WMZ 38 (Touchwood) and 45 (Sonningdale) in an effort to obtain some baseline deer density estimates for these areas. Moose surveys conducted in WMZ 33 (Moose Mountain Park) and 56 (Porcupine Forest) also provided some minimum estimates of deer densities, but confidence intervals are extremely wide and the estimates should be used with caution.
- The survey information suggested a general trend towards higher deer densities in all survey blocks, with the exception of WMZ 56 (Porcupine Forest). However, confidence limits for most of the estimates overlapped and only the WMZ 42 (Pleasantdale) survey indicated a significant increase in deer populations from 1987-88 levels (Table 23). Mean densities ranged from 1.4 to 2.0 deer/km^2, 0.7 to 0.8 deer/km^2 and 1.1 deer/km^2 for survey blocks located in southeastern, east-central and northwestern Saskatchewan, respectively.

2. Preseason Wildlife Observations

- Between September 1 and November 30, 1988, 24,745 deer were classified by sex and age in an effort to determine the preseason herd structure of the provincial deer population (Table 24). The information, referred to as the Co-operative Wildlife Management Study (CWMS), is collected annually by approximately 800 volunteer observers from the general public, wildlife interest groups and department field staff.

Table 23. White-tailed deer population estimates based on stratified random block aerial survey sampling, 1979 to 1989.

			Survey Block Population Estimate/Year							
			1979-1982		1982-1983		1983-1984		1984-1985	
Survey Block	WMZ	Area km²	±95% CI[a]	Deer/km²	±95% CI	Deer/km²	±95% CI	Deer/km²	±95% CI	Deer/km²
Alida	32	1,492	—	—	5,495 ± 16%	3.7	—	—	2,892 ± 24%	1.9
Bronson Forest[b]	68	3,186	—	—	—	—	—	—	—	—
Cumberland South[b]	60	—	—	—	—	—	—	—	—	—
Duck Mountain[b]	37	479	—	—	382 ± 24%	0.8	—	—	—	—
Dundurn	21 & 30	1,480	—	—	—	—	—	—	1,175 ± 16%	0.8
Eastend	6	1,370	—	—	—	—	—	—	—	—
Forest Fringe	50,51,62, 63,64	4,311	—	—	—	—	562 ± 63%	0.13	—	—
Fort a la Corne[c]	50	1,404	—	—	—	—	—	—	—	—
Kipling	33	1,494	—	—	513 ± 18%	0.4	—	—	—	—
Last Mtn. Lake	21	2,505	—	—	—	—	—	—	559 ± 32%	0.2
Manitou	46	2,129	—	—	2,325 ± 17%	1.1	—	—	2,392 ± 17%	1.1
Marie Hill	46	1,119	—	—	808 ± 16%	0.7	—	—	—	—
Melville	37	5,885	—	—	—	—	—	—	1,988 ± 10%	0.4
Moose Mtn.[b]	33	681	1,691 ± 18%	2.5	1,670 ± 18%	2.5	1,303 ± 16%	1.90	1,118 ± 33%	1.6
Moosomin	34	932	—	—	1,432 ± 8%	1.6	—	—	974 ± 29%	1.0
Parkerview	39	1,678	—	—	2,470 ± 14%	1.5	—	—	2,227 ± 14%	1.3
Parkman	34	1,865	—	—	2,462 ± 54%	1.4	—	—	2,107 ± 18%	1.1
Pleasantdale	42	2,949	1,106 ± 10%	0.4	—	—	—	—	963 ± 12%	0.3
Porcupine Forest[b]	56,57	—	—	—	—	—	—	—	—	—
Sask. River (Leader)	11 & 14	855	—	—	—	—	—	—	—	—
Sask. River	13 & 14	4,994	—	—	—	—	—	—	2,494 ± 19%	0.5
Sonningdale	45	1,958							2,062 ± 24%	1.1
Souris	31	3,149	—	—	—	—	—	—	4,051 ± 19%	1.3
Thickwood Hills West	54	1,492	—	—	1,093 ± 24%	0.7	—	—	—	—
Val Marie	2	1,119	—	—	—	—	—	—	—	—
Wroxton	37	1,176	—	—	483 ± 10%	0.4	—	—	1,413 ± 21%	1.2
Yorkton	39	3,107	2,792 ± 14%	0.9	—	—	—	—	—	—

			Survey Block Population Estimate/Year							
			1985-1986		1986-1987		1987-1988		1988-1989	
Survey Block	WMZ	Area km²	±95% CI[a]	Deer/km²	±95% CI	Deer/km²	±95% CI	Deer/km²	±95% CI	Deer/km²
Alida	32	1,492	1,874 ± 11%	1.3	—	—	—	—	2539 ± 19%	1.4
Bronson Forest[b]	68	3,186	—	—	3,130 ± 22%	1.0	—	—	—	—
Cumberland South[b]	60		—	—	809 ± 29%	0.4	—	—	—	—
Duck Mountain[b]	37	479	—	—	337 ± 28%	0.7	—	—	—	—
Dundurn	21 & 30	1,480	—	—	—	—	—	—	—	—
Eastend	6	1,370	827 ± 18%	0.9	989 ± 20%	0.7	—	—	—	—
Forest Fringe	50,51,62, 63,64	4,311	—	—	—	—	—	—	—	—
Fort a la Corne[c]	50	1,404	—	—	—	—	338 ± 30%	0.24	—	—
Kipling	33	1,494	—	—	—	—	—	—	—	—
Last Mtn. Lake	21	2,191	—	—	—	—	760 ± 17%	0.35	—	—
Manitou	46	2,129	—	—	2,072 ± 20%	1.0	—	—	—	—
Marie Hill	46	1,119	—	—	—	—	881 ± 23%	0.79	—	—
Melville	37	5,885	—	—	—	—	—	—	—	—
Moose Mtn.[b]	33	681	1,122 ± 15%	1.6	1,540 ± 23%	2.3	—	—	—	—
Moosomin	34	932	648 ± 14%	0.7	—	—	—	—	1,860 ± 12%	2.0
Parkerview	39	1,678	1,388 ± 17%	0.8	—	—	—	—	—	—
Parkman	34	1,865	1,729 ± 14%	0.9	—	—	—	—	—	—
Pleasantdale	41 & 42	2,949	1,094 ± 21%	0.4	—	—	—	—	1,975 ± 20%	0.7
Porcupine Forest[b]	56,57		—	—	5,021 ± 16%	1.4	—	—	3,706 ± 32%	1.0
Sask. River (Leader)	11 & 14	855	—	—	589 ± 21%	0.7	—	—	—	—
Sask. River	13 & 14	4,994					—	—	—	—
Souris	31 & 32	3,149	—	—	—	—	—	—	3,434 ± 17%	1.1
Thickwood Hills West	54	1,492	—	—	—	—	1083 ± 15%	0.73	—	—
Touchwood	38	1,865							1,452 ± 20%	0.8
Val Marie	2	1,119	—	—	504 ± 14%	0.5	—	—	—	—
Wroxton	37	1,176	985 ± 19%	0.8	699 ± 14%	0.6	—	—	895 ± 18%	0.8
Yorkton	39	3,107	—	—	—	—	—	—	—	—

[a] Confidence intervals on the population estimate.

[b] Quadrat surveys designed primarily for moose census.

[c] Quadrat surveys designed primarily for elk census.

Table 24. Provincial white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988.

Ecological Zone	Males:Female[a]				Fawns:Female				Sample Sizes (n)			
	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
Grassland	0.33	0.33	0.37	0.38	0.78	0.88	0.96	0.92	2,336	5,134	3,246	2,503
Farmland	0.35	0.33	0.39	0.46	0.87	0.91	0.87	0.76	3,412	6,072	4,599	5,187
Parkland	0.45	0.44	0.38	0.44	0.82	0.86	1.00	1.06	5,322	11,815	9,890	10,450
Fringe	0.44	0.42	0.41	0.39	0.83	0.88	1.04	1.01	963	2,419	2,249	2,723
Forest	0.46	0.45	0.43	0.42	0.69	0.80	0.92	0.94	1,287	3,600	3,833	3,882
All Zones	0.40	0.40	0.39	0.43	0.81	0.87	0.96	0.95	13,320	29,040	23,817	24,745

[a] Males:Females = Yearling Males + Mature Males + Unclassified Adult Males/Total Adult Females.

- Total observations increased 4% from 1987, with major increases in the Forest Fringe (21%), Farmland (13%) and Parkland (6%) ecozones and a decline in observations in the Grassland (22%) ecozone. With approximately the same number of individuals participating in the program as in 1987, the increased number of observations may simply be the result of higher individual effort to collect data, however, co-operators reported that they were generally seeing more deer and that populations appear to be growing in most areas of the province.
- Provincially, preseason estimates, ranging from 0.76 to 1.06 fawns:doe, suggested normal fawn production throughout the Parkland, Forest Fringe and Forest ecozones and below average fawn production in the Grassland and Farmland ecozones. Most ratios were similar to 1987, but significantly higher than the poor fawn to doe estimates from 1985 and 1986, attributed to high mortality of some age classes during the severe 1984-85 winter. The Grassland and in particular, the Farmland fawn to doe ratios were lower than the 1987 estimates. High preseason fawn mortality, caused by the severe 1988 drought in southern Saskatchewan, may have distorted ratios. Fewer twins, more single fawns and a higher percentage of does without fawns were also observed in the Grassland and Farmland ecozones and suggested that summer mortality may have been higher than normal in 1988 (Table 25).
- Buck to doe estimates ranged from 0.38 to 0.46 bucks:doe throughout the province, but remained relatively unchanged from previous years (Table 24). However, the percentage of yearling to mature bucks in the population increased significantly (47% to 57% yearlings in 1988 versus 42% to 55% yearlings in 1987 and 33% to 49% in 1986) in response to higher fawn survival during the 1986 and 1987 mild winters (Table 26).
- On an ecozone basis, many individual zones had small sample sizes and the 1988 preseason observations have to be used with caution as ratios may not accurately reflect the population structure for that zone. To ensure better accuracy, only those zones with greater than 300 observations were used for comparison.

Table 25. Percentage of whitetail does with and without fawns based on preseason field observations, September to November 1985 to 1988.

Ecological Zone	1985 Single	1985 Twins	1985 Triplets	1985 Without Fawns	1986 Single	1986 Twins	1986 Triplets	1986 Without Fawns	1987 Single	1987 Twins	1987 Triplets	1987 Without Fawns	1988 Single	1988 Twins	1988 Triplets	1988 Without Fawns
	% of Does With and Without Fawns															
Grassland	56	40	4	47	56	39	5	40	49	47	4	38	56	41	2	37
Farmland	59	37	4	40	55	40	5	39	54	42	4	42	60	37	3	46
Parkland	59	39	2	43	55	41	3	42	50	44	6	35	51	45	4	30
Fringe	57	42	1	43	52	46	3	42	47	47	6	35	53	42	5	33
Forest	57	42	0	51	52	46	2	47	48	47	5	41	52	44	4	39
All Zones	58	39	3	44	55	42	4	42	50	45	5	38	54	43	4	36

Table 26. Percentage of yearling[a] and mature males[b] in the provincial white-tailed deer population based on preseason field observations, September to November 1985 to 1988.

Ecological Zone	1985 % Yearlings	1985 % Mature	1985 Sample Size (n)	1986 % Yearlings	1986 % Mature	1986 Sample Size (n)	1987 % Yearlings	1987 % Mature	1987 Sample Size (n)	1988 % Yearlings	1988 % Mature	1988 Sample Size (n)
Grassland	46	54	364	49	51	811	55	45	492	57	43	405
Farmland	38	62	527	41	59	887	46	54	778	47	53	1,056
Parkland	33	67	1,054	37	63	2,250	42	58	1,527	47	53	1,822
Fringe	34	66	188	33	67	435	47	53	360	48	52	440
Forest	44	56	270	45	55	700	49	51	670	55	45	689
All Zones	38	62	2,403	41	59	5,083	46	54	3,827	49	51	4,412

[a] Antler classes A, B and C; refer to Appendix 4.
[b] Antler classes D, E and F; refer to Appendix 4.

- The Grassland fawn to doe ratios fluctuated from 0.78 to 1.10 fawns:doe in WMZ 1, 6 and 14, but remained stable or declined slightly from 1987 levels (Table 27). Department staff, conducting spot light surveys on the west side of WMZ 14, observed 1.02 rather than 0.78 fawns:doe in the preseason population, suggesting that productivity may have been higher than reported by the CWMS.
- In the Farmland ecozone, ratios ranged from 0.59 to 0.89 fawns:doe in WMZ 17, 19, 20, 21, 23, 24, 29 and 30, a decline from 0.58 to 1.08 fawns per doe observed in the same zones in 1987 (Table 28). The 1988 ratios were the lowest since the observation program started in 1981 and suggested that the 1988 severe drought in southern Saskatchewan may have contributed to high summer fawn mortality.
- The Parkland fawn to doe ratios, ranging from 0.91 to 1.28 fawns:doe in WMZ 31, 32, 33, 34, 37, 39, 45, 46 and 47, suggested excellent fawn production and survival in 1988 (Table 29). Slightly lower ratios were observed in WMZ 40 and 42, but there were no significant differences from 1987.
- Forest Fringe and Forest fawn to doe ratios, ranged from 0.88 to 1.24 fawns:doe and were similar to 1987 productivity estimates (Tables 30 and 31). These ecozones have experienced higher fawn production and survival for the past 2 years and current ratios are consistent with the department's impression that deer populations in the northern Forest areas are higher than normal.

Table 27. Grassland white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
01	0.30	0.29	0.30	0.24	0.67	0.88	0.87	0.84	279	959	366	470
02	0.34	0.33	0.64	0.38	1.01	0.97	0.73	1.09	325	596	289	286
03	0.00	0.27	0.25	–	1.33	1.64	1.35	–	7	32	52	3
04	0.27	0.24	0.18	0.22	0.61	0.71	1.19	0.81	543	896	253	246
05	0.36	0.28	0.29	0.21	0.81	0.90	0.90	1.21	155	343	210	188
06	0.57	0.42	0.39	0.65	0.90	0.91	0.92	1.10	239	621	305	374
07	0.27	0.37	0.29	0.65	0.81	0.95	1.12	1.06	172	482	351	138
08	0.36	0.41	0.24	0.33	0.83	0.87	1.12	0.96	79	89	137	62
09	0.12	0.23	0.71	0.83	0.53	0.64	1.04	0.72	80	105	66	46
10	0.47	0.66	0.29	0.88	0.86	1.27	0.82	0.94	100	240	59	48
11	0.80	0.18	0.00	0.50	1.15	1.29	2.00	1.00	29	42	3	10
12	0.27	0.27	0.43	–	1.09	1.09	1.12	–	26	25	148	1
13	0.50	0.39	0.32	0.27	0.85	0.83	1.27	0.81	141	402	220	221
14	0.40	0.43	0.43	0.40	0.97	0.94	0.84	0.78	161	301	787	410
Total	0.33	0.33	0.37	0.38	0.78	0.88	0.96	0.92	2336	5,134	3,246	2,503

[a] Males:Female = Yearling Males + Mature Males + Unclassified Adult Males/Total Adult Females.

Table 28. Farmland white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
15	0.25	0.26	0.27	0.35	1.04	1.08	1.15	1.14	729	1,012	316	232
16	0.35	0.40	0.29	0.42	0.85	0.95	1.02	0.99	186	363	395	284
17	0.31	0.35	0.35	0.46	0.79	0.87	0.90	0.89	199	337	506	557
18	0.28	0.31	0.33	0.98	0.51	0.77	0.93	0.79	70	108	97	155
19	0.48	0.37	0.40	0.52	0.70	0.74	0.62	0.76	317	574	237	392
20	0.66	0.60	0.50	0.57	0.74	0.86	0.65	0.59	248	379	567	664
21	0.35	0.33	0.42	0.39	0.99	1.00	0.99	0.93	361	833	823	705
22	0.20	0.43	0.47	0.88	0.00	0.57	1.19	1.14	3	14	125	154
23	0.27	0.27	0.38	0.44	0.92	1.02	1.08	0.69	970	1,522	604	776
24	0.62	0.44	0.53	0.64	0.54	0.88	0.65	0.64	28	132	74	235
25	0.33	0.29	0.43	0.42	0.83	0.71	0.76	0.67	12	48	46	94
26	0.21	0.17	0.58	0.46	0.89	0.87	0.88	0.60	39	61	118	103
27	0.25	0.23	0.16	0.32	0.42	0.38	0.45	0.80	19	85	71	93
28	0.53	0.57	0.29	–	0.94	1.39	0.71	–	42	68	14	13
29	0.40	0.32	0.48	0.36	0.59	0.36	0.58	0.64	125	225	390	365
30	0.69	0.46	0.19	0.28	0.77	0.78	0.79	0.54	64	311	216	365
Total	0.35	0.33	0.39	0.46	0.87	0.91	0.87	0.76	3,412	6,072	4,599	5,187

[a] Males:Female = Yearling Males + Mature Males + Unclassified Adult Males/Total Adult Females.

Table 29. Parkland white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
31	0.24	0.30	0.22	0.23	0.98	1.02	1.03	0.90	438	946	1,295	800
32	0.37	0.43	0.41	0.47	0.96	0.94	0.96	1.01	388	673	362	533
33	0.34	0.32	0.35	0.41	0.71	0.73	0.97	1.08	343	759	560	921
34	0.42	0.44	0.40	0.49	0.72	0.81	1.11	1.28	832	1,559	831	1,352
35	0.66	0.52	0.45	0.37	0.73	0.83	1.22	1.21	378	978	736	196
36	0.34	0.36	0.58	0.56	0.66	0.59	0.76	0.99	57	119	129	275
37	0.42	0.38	0.39	0.42	0.81	0.85	1.02	1.18	1,112	2,317	1,635	1,662
38	0.58	0.61	0.39	0.44	0.54	0.68	1.12	0.86	125	327	430	519
39	0.57	0.57	0.42	0.50	0.92	1.12	1.10	1.16	440	1,251	1,426	1,259
40	0.71	0.69	0.50	0.48	0.97	0.94	0.74	0.80	166	268	488	439
41	0.50	0.41	0.40	0.52	1.00	1.04	1.19	1.45	77	309	311	193
42	0.66	0.50	0.41	0.39	0.63	0.68	0.68	0.64	206	524	415	414
43	0.49	0.46	0.18	0.33	0.92	0.83	0.85	1.01	123	160	167	213
44	0.67	0.32	0.46	0.37	0.17	0.64	0.86	1.82	12	145	130	156
45	0.46	0.53	0.37	0.41	0.83	0.80	0.74	0.97	379	804	320	710
46	0.74	0.51	0.21	0.50	0.70	0.65	0.87	0.91	66	242	239	448
47	0.40	0.40	0.53	0.64	0.92	0.86	1.04	1.01	180	434	416	360
Total	0.45	0.44	0.38	0.44	0.82	0.86	1.00	1.06	5,322	11,815	9,890	10,450

[a] Males:Female = Yearling Males + Mature Males + Unclassified Adult Males/Total Adult Females.

Table 30. Forest Fringe white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
48	0.50	0.53	0.54	0.39	1.10	1.16	0.98	0.88	156	261	290	466
49	0.70	0.44	0.32	0.51	0.91	0.92	1.12	0.97	59	446	414	572
50	0.60	0.53	0.53	0.46	0.81	0.79	1.07	0.91	169	332	286	300
51	0.38	0.32	0.51	0.32	0.85	0.79	0.60	0.59	87	118	158	65
52	0.50	0.35	0.43	0.25	0.75	0.71	0.73	0.50	54	99	65	28
53	0.29	0.40	0.31	0.34	0.70	0.66	0.78	1.03	188	330	161	138
54	0.36	0.41	0.43	0.38	0.67	0.90	0.96	1.08	164	470	415	549
55	0.47	0.33	0.34	0.29	1.09	1.03	1.43	1.24	86	363	460	605
Total	0.44	0.42	0.41	0.39	0.83	0.88	1.04	1.01	963	2,419	2,249	2,723

[a] Males:Female = Yearling Males + Mature Males + Unclassified Adult Males/Total Adult Females.

Table 31. Forest white-tailed deer population structure based on preseason field observations, September to November 1985 to 1988.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
56	0.35	0.40	0.40	0.40	0.82	0.85	0.90	0.89	259	728	768	1384
57	0.60	0.49	0.53	0.57	0.73	0.74	0.79	0.93	191	495	576	630
58	0.42	0.42	0.55	0.56	0.58	0.79	0.65	0.93	62	162	112	137
59	0.35	0.57	0.69	0.42	0.89	0.78	0.89	0.80	121	235	116	275
60	0.37	0.42	0.33	0.37	0.47	0.59	1.16	0.75	103	224	352	161
61	0.57	0.33	0.53	0.13	0.43	0.73	1.00	0.38	14	31	38	36
62	0.65	0.53	0.40	0.35	0.41	0.88	1.10	1.12	35	123	240	232
63	0.64	0.55	0.62	0.39	0.67	0.96	1.14	1.07	130	369	382	295
64	0.64	0.44	0.43	0.64	0.89	0.79	1.05	1.09	71	192	285	60
65	0.00	0.42	0.00	–	0.00	1.25	1.25	–	1	32	9	–
66	0.53	0.48	0.46	0.31	0.47	0.60	0.83	1.22	132	306	304	139
67	0.33	0.37	0.27	0.37	0.64	0.76	0.88	1.07	69	226	307	261
68	0.70	0.38	0.33	0.59	1.40	0.90	0.86	0.94	31	180	107	43
69	0.35	0.44	0.26	0.31	0.87	1.05	0.75	1.09	51	247	209	216
70	0.00	–	1.00	–	0.00	–	1.33	–	1	–	10	–
71	0.13	0.11	0.33	–	0.38	0.33	0.67	–	12	13	6	–
72	0.00	0.00	0.00	–	0.00	0.25	0.40	–	1	10	7	–
73	0.20	–	1.00	0.75	0.10	–	3.00	1.00	3	–	5	11
Total	0.46	0.45	0.43	0.42	0.69	0.80	0.92	0.94	1287	3600	3833	3882

[a] Males:Female = Yearling Males + Mature Males + Unclassified Males/Total Females.

3. Impact of Weather Severity

- The 1988 drought extended throughout most of the Grassland and Farmland ecozones in southern Saskatchewan. Although there were some localized areas of normal precipitation, most areas experienced very hot and dry conditions throughout the months of June and July. Fawn to doe ratios derived from spring collected does (1.90 fawns:doe) and fall spot light surveys (1.44 fawns:adult doe) in WMZ 14 suggested summer fawn mortality was approximately 24%.

- Similar ratios obtained from mule deer populations in WMZ 10 suggested that fawns to doe ratios declined from 1.50 fawns:adult doe in the spring to 1.04 fawns:adult doe in the fall for 31% summer fawn mortality. Comparing the 1988 spring fecundity rates with fall observations from 1987, a year with normal precipitation, summer fawn mortality was estimated at only 24%. Assuming the drought impacts fawn survival in mule deer to the same degree as white-tailed deer, it appeared fawn mortality during the summer of 1988 was higher than normal.
- Most areas of the province experienced mild to moderate winter conditions with normal temperatures and below average snow cover during the 1988-89 winter. In the northern Parkland and Forest zones, snow depths were well below normal throughout the November to March time period. The Grassland and Farmland zones had complete snow cover throughout most of the winter but not enough to impact deer daily movements or seasonal distribution. Some deer concentrated around feed stacks and more dense habitat cover, but few mortality problems were encountered by field staff. Overall winter conditions did not differ significantly from 1987, except for more snow in the south and below average snow cover in the northern parts of the white-tailed deer range.
- The exception, however, was the extreme southeastern portion of Saskatchewan, where heavy mid-winter snowfalls created some problems for deer. Heavy snow cover in WMZ 31, the south half of WMZ 32 and parts of WMZ 15 and 16 caused large numbers of deer to yard up in dense habitat and around livestock feedstacks. Extensive intercept feeding was initiated by department staff in the Estevan, Carievale and Gainsborough areas to reduce damage to agricultural produce. Winter severity indices calculated from weather data for the Broadview and Estevan weather stations indicated that, although the Estevan area experienced a harsher winter than the Broadview area, conditions were similar to the 35 year long-term average (Table 32). These data suggested that deer populations in the extreme southeastern portion of Saskatchewan did not experience higher mortality than might be expected in a normal winter.

Table 32. Weather severity index calculated during the 1988-89 winter for the Broadview and Estevan weather stations in southeastern Saskatchewan.

Weather Station	Time Period/Month End					Total
	Nov.	Dec.	Jan.	Feb.	Mar.	
Broadview	16.50	19.22	22.91	14.06	10.44	83.13
Estevan	20.85	20.95	20.63	20.71	10.67	93.81
Normal Index[a]	21.00	21.00	21.00	21.00	21.00	105.00

[a] Represents a normal winter index based on 35 year average data.

- Late winter necropsies conducted by department staff on approximately 60 road-killed deer from southern Saskatchewan indicated normal body and femur fat depletion rates and most age classes were indicative of deer in good physical condition. Some of the necropsied fawns from southeastern Saskatchewan were in poor condition suggesting that mortality on this age class may be higher than normal.

4. Current Population Status

- Provincial white-tailed deer populations, although not at the high levels experienced during the late 1960's and early 1970's, appear to be stable or growing slowly. Habitat loss associated with changing agricultural practices and environmental conditions appear to be the major factors limiting rapid growth.
- On a regional level, deer populations in southwestern Saskatchewan have increased over the past few years in response to mild winters. Season dates have been liberalized accordingly. Drought conditions continue to have a negative impact on fawn recruitment, but populations appear higher than 1988 levels.
- The Farmland zones currently support below normal populations despite recent mild winters. Drought conditions appear to be influencing fawn recruitment, but generally populations remain below long-term levels because of the shortage of good habitat. Deer densities on prime whitetail habitat are similar to densities in the Parkland zones, but less of this type of habitat exists throughout the Farmland ecozone, resulting in overall lower populations. Populations are similar to 1988 levels.
- The northern Parkland zones continue to support good whitetail populations. Deer densities from aerial surveys and buck to doe to fawn observations suggest that recent mild winters, followed by good fawn survival, have encouraged population growth. In the eastern Parkland areas, particularly the Pleasantdale and Humboldt areas, populations appear to have increased significantly since 1986. A combination of mild winters and selective harvest strategies have also encouraged populations to increase in WMZ 37 to 39, zones that have recently experienced fawn recruitment and over-harvest problems.
- Deer densities in the extreme southeastern Parkland zones continue to increase from depressed levels following the severe 1984-85 winter. A combination of heavy mid-winter snow conditions and generally higher populations created some crop depredation problems in 1988, but these problems were resolved though intercept feeding programs and an increased harvest on the antlerless segment of the population. Populations appear to be higher than 1988 levels and should continue to increase slowly pending weather severity factors.

- In the Forest Fringe and Forest ecozones, whitetail populations remain higher than normal, as a result of mild winter conditions during the past several years. Forest deer have traditionally been subjected to higher winter mortality on a more frequent basis than southern populations. Populations should continue to increase, despite more liberal bag limits and season dates, as long as winters remain relatively mild.

C. 1989 MANAGEMENT OBJECTIVES

1) With some minor exceptions, the primitive weapon, archery and muzzleloader seasons, is similar to the 1988 season structure. An extra week is added to the WMZ 9 and 10 archery season to ensure dates in these zones were consistent with the rest of the province and to maximize recreation opportunity. Minor changes are made to the primitive weapon dates in WMZ 70 to 76 to allow them to overlap with the far northern moose season dates.

2) In northern Saskatchewan, the early and late season structure, with a 2 deer bag limit, will remain in effect for WMZ 56 to 61, 65, 66 and 69 for resident, Canadian resident and non-resident hunters. The late season hunt, with a 2 deer bag limit, will continue in WMZ 62 to 64, 67 and 68 for all hunters. The WMZ 70 to 76 season, with a 1 deer bag limit, is similar to 1988 but a minor date change will be implemented so the season overlaps with moose. In 1989, non-residents will be required to use the services of a licenced guide or outfitter to hunt white-tailed deer in Saskatchewan.

3) In southern Saskatchewan, the 2 week either-sex November season will be maintained in the Grassland, Farmland, Parkland and Forest Fringe ecozones. To accommodate resident hunters, the season for Canadian residents is again delayed for a week and hunters are restricted to the southwestern and central parts of the province. The bucks, only selective harvest strategies in WMZ 37 to 39 will be eliminated in response to increasing populations, that now approach levels that existed in the early 1980's. Recent mild winters, in conjunction with the selective harvest strategies, have helped to promote this population growth.

4) Antlerless harvest strategies will be implemented in WMZ 2 and in a portion of WMZ 31 and 32 and will remain in effect for WMZ 6 and a portion of WMZ 11 and 14.

   - Existing antlerless whitetail seasons in WMZ 6 and 11 and 14 were designed to reduce haystack and field crop damage associated with high deer populations that could not be controlled by the male skewed either-sex harvest. Antlerless seasons were first implemented in WMZ 2 during the 1986 and 1987 hunting seasons and were again required to balance the sex-age structure of the harvest and provide some relief for landowners suffering crop depredation along the Frenchman River valley. To regulate overall harvest, the purchase of the antlerless whitetail licence will be restricted to either-sex and antlerless mule hunters drawn for WMZ 2, 6, 11 and 14. Under this system, the antlerless whitetail licence is valid only in the zone for which they held a mule deer licence and only during the November 6 to 18 time period. The primitive weapon mule and white-tailed deer hunters will also have the option to shoot an antlerless deer during the September and October archery and muzzleloader seasons.

- Populations in the eastern half of WMZ 31 and southern portion of WMZ 32 have been growing for several years in response to mild winter conditions and good fawn survival. To assist in harvesting the growing antlerless component of the population, balance the herd structure and provide sport hunters with additional recreation opportunity in an area that normally experiences low hunter densities, an antlerless season east of Highway 9 and south of Highway 361 will be implemented in 1989. The season dates are December 4 to 9, immediately following the either-sex rifle season. Hunters have the opportunity to purchase an antlerless licence or hunt with their unused first or second either-sex licences, provided they take an antlerless white-tailed deer during this special season. The primitive weapon white-tailed deer hunters will also have the option to shoot an antlerless deer during the September and October archery and muzzleloader seasons.

5) Guided moose hunters will again have the opportunity to purchase an either-sex white-tailed deer licence and hunt during their moose season. The season includes some dates between August 28 and October 21 that are not normally open for other white-tailed deer licence holders. These additional dates are required to accommodate those moose hunters that are already using the services of a licenced outfitter and desire to harvest a white-tailed deer while hunting moose. Only 400 guided moose licences will be available for purchase and the additional white-tailed deer harvested in the past during these extra season dates have had minimal impact on the deer population.

6) Some Prairie Farm Rehabilitation Administration (PFRA) pastures will again be open for primitive weapon hunting prior to removal of the cattle by pasture patrons. Primitive weapons deer hunting is allowed, with permission of the pasture manager, in portions of Brokenshell 1 and 2 (archery only), Battle River-Cutknife, Coteau, Elbow, Montrose, Rudy-Rosedale, Usborne and Wolverine pastures. The Lomond 3, McCraney, Monet and Wellington pastures, that were open for primitive weapons hunting in

1988, will be closed for 1989 because of safety concerns expressed by pasture managers and patrons. All PFRA and Saskatchewan Department of Agriculture (SDA) pastures, with the exception of some pastures designated as Wildlife Management Units, will open for November rifle hunters once the cattle are removed and with permission from the pasture manager.

D. 1989 WHITE-TAILED DEER SEASONS

White-tailed Deer Primitive Weapons (Sask. Residents Only)	Zones 1 to 55, including Brokenshell No. 1 and No. 2, Elbow, Fort a la Corne, Great Bend and Horsehide Lake Wildlife Management Units; and Duck Mountain, Moose Mountain and Saskatchewan Landing Provincial Parks	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Oct. 2 - Oct. 14	one white-tailed deer, either sex	● An unsuccessful archer or muzzleloader hunter may use his unfilled either-sex white-tailed deer licence in all white-tailed deer rifle seasons and the Shotgun-Archery-Muzzleloader areas of Zones 20 and 30. ● **Note: Special conditions apply to primitive weapons hunting in Brokenshell No. 1 and No. 2 and Elbow Wildlife Management Units.**
	Zones 2, 6, that portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta border and that portion of Zones 31 and 32 south of Highway No. 361 and east of Highway No. 9	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Oct 2. - Oct. 14	one antlerless white-tailed deer	● Archery or muzzleloader hunters may purchase an additional antlerless white-tailed deer licence at department offices, valid only in Zones 2 and 6, and the specified portions of Zones 11 and 14, 31 and 32 during the archery and muzzleloader seasons. ● Second white-tailed deer either-sex licences are valid only in Zones 56 to 69 and the specified portions of Zones 31 and 32 during the Dec. 4 to Dec. 9 antlerless season. A separate licence is required. ● **Note: The opening date in Duck Mountain, Moose Mountain, Greenwater Lake, Meadow Lake and Saskatchewan Landing Provincial Parks and Bronson Forest Recreation Site is delayed until September 6.**
	Zones 56 to 69, including Leaf Lake Wildlife Management Unit; Greenwater Lake, Meadow Lake and Nipawin Provincial Parks; and Bronson Forest Recreation Site	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Sept. 18 - Oct. 14	two white-tailed deer, either sex	
	Zones 70 to 76, including Clearwater River and Lac la Ronge Provincial Parks	Archery and Muzzleloading Rifles Aug. 28 - Oct. 14	one white-tailed deer, either sex	
White-tailed Deer Archery (Canadian Residents and Non-residents)	Zones 56 to 76, including Leaf Lake Wildlife Management Unit; Clearwater River, Greenwater Lake, Lac la Ronge, Meadow Lake and Nipawin Provincial Parks; and Bronson Forest Recreation Site	Sept. 4 - Oct. 14	one white-tailed deer, either sex	● An unsuccessful archer may use his unfilled either-sex white-tailed deer licence in all white-tailed deer seasons open to Canadian Residents and Non-residents. ● **Note: The opening date in Greenwater Lake and Meadow Lake Provincial Parks and Bronson Forest Recreation Site is delayed until September 6.** ● **Non-residents of Canada must use the services of a registered guide or licenced outfitter.**
White-tailed Deer (Sask. Residents Only)	Zones 16, 17, 31 to 35, and 37 to 39, including Duck Mountain and Moose Mountain Provincial Parks	Nov. 20 - Dec. 2	one white-tailed deer, either sex	● **"Roads and Trails Only". Hunters in Zones 15 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails.** ● "Antlerless White-tailed Deer" means a doe or 1989 fawn.
	That portion of Zones 31 and 32 south of Highway No. 361 and east of Highway No. 9	Dec. 4 - Dec. 9	one antlerless white-tailed deer	● Hunters may purchase a separate antlerless white-tailed deer licence or use their unfilled 1st or 2nd either-sex white-tailed deer licences to harvest an antlerless white-tailed deer in the specified portions of Zones 31 and 32.

	Zones 2, 6 and that portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta Border (Zones 2, 6, 11 and 14 either-sex and antlerless mule deer licence holders only)	**Specified mule deer seasons between Nov. 6 and Nov. 18 inclusive**	**one antlerless white-tailed deer**	**• In Zones 2, 6 and the specified portion of Zones 11 and 14, either-sex and antlerless mule deer licence holders may purchase an additional antlerless white-tailed deer licence at department offices upon proof of possession of a mule deer licence for Zones 2, 6, 11 and 14 only.**
White-tailed Deer (Sask. Residents and Canadian Residents)	Zones 1 to 15, 18 to 30 and 40 to 55, including Brokenshell No. 1 and No. 2, Cookson, Estevan-Cambria, Elbow, Fort a la Corne, Horsehide Lake, Last Mountain Lake and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and Saskatchewan Landing Provincial Park	Sask. Residents Nov. 20 - Dec. 2 Canadian Residents Nov. 27 - Dec. 2	one white-tailed deer, either sex	**• Note: Primitive weapons only in Saskatchewan Landing Provincial Park.** **• Portions of Zones 20 and 30 are restricted to shotgun, archery, and muzzleloading rifle hunting only. Please refer to Wildlife Management Zone maps.** **• Hunters will be restricted to designated trails within the Cookson and Elbow Wildlife Management Units.** **• "Roads and Trails Only". Hunters in Zones 15 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails.**
White-tailed Deer (Sask. Residents, Canadian Residents and Non-residents	Zones 56 to 61, 65, 66 and 69, including Leaf Lake Wildlife Management Unit; and Greenwater Lake, Meadow Lake and Nipawin Provincial Parks, including those portions of Nipawin Provincial Park in WMZ 63 and 64	Oct. 2 - Oct. 14 & Nov. 6 - Dec. 2	two white-tailed deer, either sex	• Second white-tailed deer licences are valid only in Zones 56 to 69 (all hunters) and for Saskatchewan Residents only in the specified portions of Zones 31 and 32 during the Dec. 4 to Dec. 9 antlerless season. **• Persons possessing a guided moose licence may also purchase a white-tailed deer licence and hunt during the moose season dates (see Guided Moose).** **• Non-residents of Canada must use the services of a registered guide or licenced outfitter.**
	Zones 62 to 64, 67 and 68, including Nipawin Provincial Park and Bronson Forest Recreation Site	Nov. 6 - Dec. 2	two white-tailed deer, either sex	
	Zones 70 to 76, including Clearwater River and Lac la Ronge Provincial Parks	Aug. 28 - Dec. 2	one white-tailed deer, either sex	

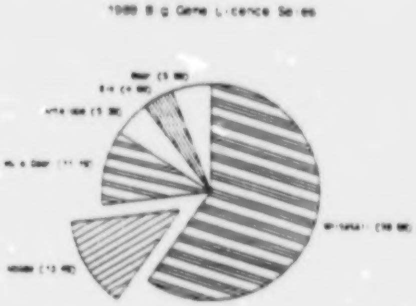
MOOSE

A. REVIEW OF 1988 HUNTING SEASON

1. Licence Sales

- Total licence sales increased 5.5% from 11,046 in 1987 to 11,652 in 1988 (Table 33). Hunter participation in moose hunting has remained relatively constant throughout the 1980's.
- Population growth during this decade in northeastern Saskatchewan has resulted in a gradual increase in special draw season licence quotas. Special licences were up 3.2% as a result of an additional 100 licences in Fort a la Corne and a computer problem which resulted in a small increase of licences being issued for certain WMZ. The licence quota was reduced in the combined WMZ 47, 55 and 68 by some 75 licences as a result of a declining moose population.
- Regular season licence sales have demonstrated variability from year to year. Recent trends suggest sales are on the rise (up 6.1% in 1988), however, annual hunter participation has been and will continue to be influenced by fall weather conditions and the status of crop harvest in the south.

Table 33. Provincial moose licence sales, 1983 to 1988[a].



	1984	1985	1986	1987	1988	% Change
Special	1,898	2,105	2,082	2,113	2,202	+ 3.2%
Regular	8,006	8,125	9,363	8,653	9,181	+ 6.1%
Archery	41	38	31	43	34	- 20.9%
Guided	194	239	208	217	235	+ 8.3%
Total	10,165	10,507	11,684	11,046	11,652	+ 5.5%

[a] All licence sales represent final sale figures as of June 1 in the following year; however, the data analysis is based on figures available in mid-February.

2. Hunting Activity and Harvest

a) Provincial

- The most significant element of the moose season in 1988 was the fact that the early season coincided with the last part of the rut. Hunting during the rut resulted in an abnormally high harvest in the early season which was also enhanced because of an early grain harvest allowing more sporthunters to come north. Access during the early season was greatly improved as compared to past years because of the dry conditions that were found in all parts of the forested areas of Saskatchewan with perhaps the exception being the Meadow Lake area. Hunting conditions during the late season were noted as being fair. The lack of snow, rain and calm days were common complaints for not being able to find a moose.

- The hunter questionnaire survey indicated that active hunters changed from 9,552 (1987) to 10,698 in 1988, a 12% increase (Fig. 6). The provincial harvest (Table 34) showed an approximate 15% increase from 3,481 in 1987 to 4,014 in 1988. This is the second highest harvest (5,152 in 1980) recorded since the establishment of the present moose management system. Total days of recreation changed from 43,989 in 1987 to 49,260 in 1988, a 12% increase.

b) Northern Commercial Forest

- For the Forest **special seasons**, 1,669 active hunters harvested 934 moose compared to 1,746 active hunters that harvested 926 moose in 1987. With a 55% success rate, hunter days declined from 7,511 (1987) to 7,083 (1988).
- In the Forest and Northern Shield **regular season** activity increased from 6,472 hunters (1987) to 7,701 hunters (1988) with a substantial increase in the harvest from 2,060 to 2,489 moose.
- In the Parkland (WMZ 43 and 47) and the Forest Fringe (WMZ 48 and 49, 53 and 55), 847 active hunters harvested 279 bulls and calves in 1988 as compared to 681 active hunters in 1987 harvesting 246 bulls and calves.

c) Southern Zones

Moose Mountain Provincial Park (WMZ 33) and Cypress Hills Provincial Park (WMZ 7)

- No hunting seasons in 1988.

Cypress Hills Provincial Park (WMZ 6)

- The 26 licences issued in WMZ 6 (East Block) resulted in the harvest of 24 moose (92% success) and provided 57 recreation days during 1988.

Thickwood Hills (WMZ 54)

- The quota of 100 licences provided 385 recreation days for 101 hunters with a harvest of 62 moose. The moose were harvested in the vicinity of the Royal-Meeting Lake PFRA pastures, Crown land in the Deserter Lake area west of Meeting Lake and along the Forest Fringe north of Spiritwood.

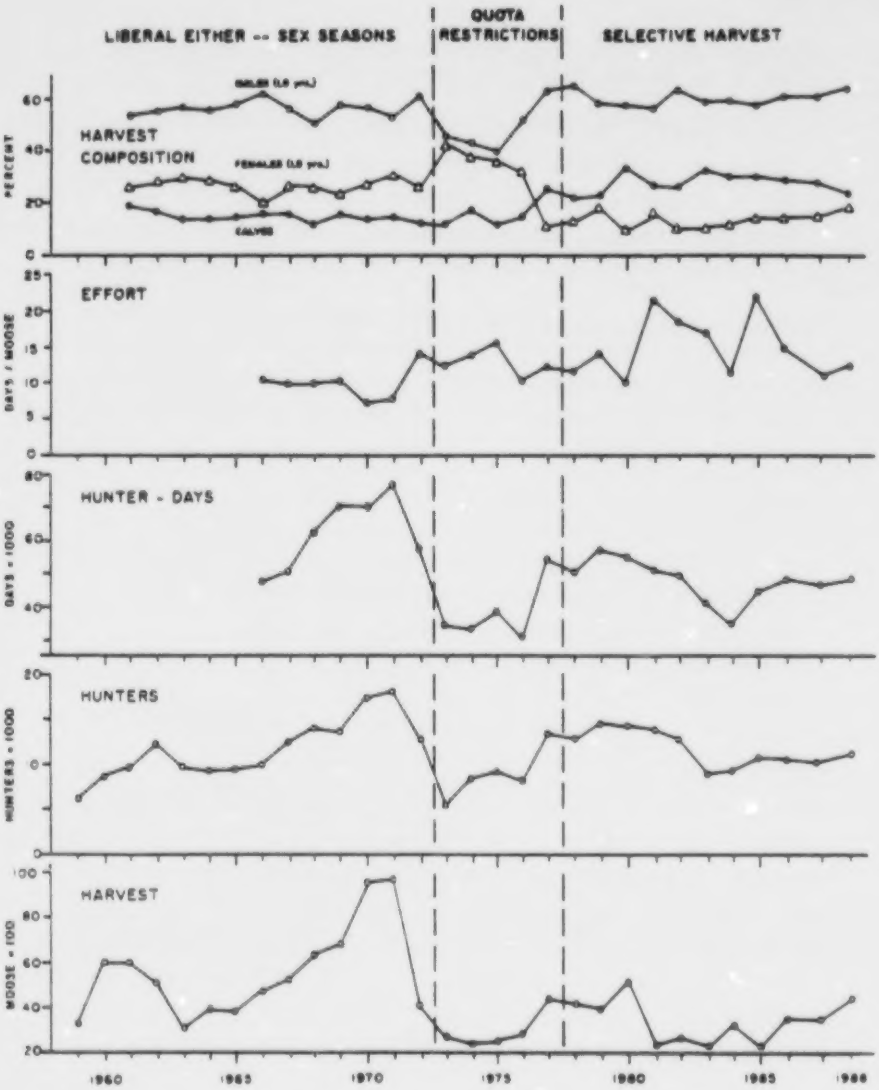


Fig. 6. Estimated provincial hunter success and harvest pressure during the moose season, 1959 to 1988.

Table 34. Moose sport harvest by licence type, 1984 to 1988.

Licence	1984	1985	1986	1987	1988
Either sex Special (Draw)	821	653	910	1,067	1,144
Regular (Bull-calf)	2,371	1,413	2,554	2,309	2,768
Archery (Either sex)	3	2	65	5	2
Guided (Bull-calf)	90	90	93	unk 100?	unk 100?
Total	3,285	2,158	3,563	3,481	4,014
Hunter Success %	37%	22%	34%	37%	37%

Fort a la Corne Wildlife Management Unit (WMZ 50)

- As a result of a survey that indicated a significant population increase from 234 ±24% moose in 1982-83 to 427 ±20% moose in 1987-88, the quota of licences was increased from 100 to 200 for the 1988 hunting season. As a result 208 hunters harvested 86 moose spending 925 days hunting. In 1987, 95 hunters harvested 29 moose.

Duck Mountain Provincial Park (WMZ 37)

- The quota of 100 licences provided for 436 recreation days for 98 hunters with a harvest of 35 moose which is similar to the 1987 season (33 moose).

Greenwater Lake Provincial Park (WMZ 56)

- The hunter activity and harvest information for Greenwater Park is combined with WMZ 56 in the hunter questionnaire survey analysis and, therefore, could not be separated. Resource staff at Greenwater Park estimate a harvest of about 10 animals in 1988 which is lower than the 1987 season.

3. Harvest Structure

- The provincial harvest structure was estimated at 3.94 bull:cow:1.89 calves, with bulls, cows and calves comprising 58%, 15% and 27% of the harvest, respectively (Table 35). These percentages are similar to 1987 and the long-term trend since selective harvest strategies were introduced in 1977. The lower number of males in the harvest per females in 1988 as compared to 1987 (Table 35) can be attributed to changes in the special season harvest whereby the number of males dropped by 11% and the number of females increased by 20%.

Table 35 . Provincial moose harvest structure,[a] 1985 to 1988.

Ecozone	1985 Males:Females:Young	1986 Males:Females:Young	1987 Males:Females:Young	1988 Males:Females:Young
Grassland	0.00:1:0.00	0.50:1:1.25	1.14:1:0.00	3.40:1:0.40
Farmland	0.00:1:0.00	0.50:1:0.00	0.00:1:0.00	0.00:1:0.00
Parkland	1.66:1:0.80	1.96:1:1.46	1.30:1:0.70	1.61:1:1.00
Fringe	1.89:1:1.59	2.00:1:1.47	1.52:1:0.92	1.44:1:1.20
Forest	4.75:1:2.29	5.85:1:2.41	6.11:1:2.45	5.22:1:2.29
Shield	15.03:1:0.00	14.21:1:0.00	22.00:1:0.00	10.00:0:0.00
Total	4.09:1:2.16	4.97:1:2.19	4.36:1:1.83	3.94:1:1.89
Percent	56%:14%:30%	61%:12%:27%	61%:14%:25%	58%:15%:27%
Percent (Forest only)	59%:13%:28%	63%:11%:26%	64%:10%:26%	61%:12%:27%

[a] Includes both regular bull-calf and special either sex seasons but not guided moose licences nor free big game permits to trappers.

- Of special interest is Tables 36 and 37 which indicate that the percentage of bulls shot during the 1988 regular 1988 either-sex season was similar to the long-term average despite changes in season dates.

Table 36. Comparison of season dates for regular and guided moose licences.

	Regular	Guided
1988	October 3 - October 8 November 21 - December 3	October 3 - October 22 November 7 - November 26
1987	October 5 - October 10 November 16 - November 28	October 5 - October 24 November 2 - November 21
1986	October 6 - October 11 November 17 - November 29	October 6 - October 25 November 3 - November 22
1985	October 7 - October 12 November 18 - November 30	September 30 - October 19 November 4 - November 23
1984	October 8 - October 13 November 19 - December 1	October 1 - October 20 November 5 - November 24
1983	October 10 - October 15 November 21 - December 3	October 3 - October 22 November 7 - November 26
1982	October 4 - October 9 November 15 - November 27	October 4 - October 23 November 1 - November 20
1981	October 5 - October 10 November 16 - November 28	October 5 - October 24 November 2 - November 21

Table 37. Hunting season percent of bull versus calves.

	Hunting Season	% Bulls	% Calves
1988	October 3 - October 8 November 21 - December 3	68	32
1987	October 5 - October 10 November 16 - November 28	70	30
1986	October 6 - October 11 November 17 - November 29	68	32
1985	October 7 - October 12 November 18 - November 30	62	38
1984	October 8 - October 13 November 19 - December 1	67	33
1983	October 10 - October 15 November 21 - December 3	60	40
1982	October 4 - October 9 November 15 - November 27	63	37
1981	October 5 - October 10 November 16 - November 28	63	37
1980	October 6 - October 11 November 17 - November 29	80	20
1979	October 8 - October 13 December 1 - December 1	72	28

Biological Collection Data

- SPRC no longer runs check stations but relies on privately operated check points for samples. With check stations spread throughout thenorthern forest area of the province 1,167 samples were collected which is the highest number recorded since the establishment of the new moose management system. Most of the check points worked very well with some operators providing incentives for hunters to bring in samples. Samples were collected during both the special either sex and regular bull-calf seasons and tabulated according to animal sex and age class (Table 38; Fig. 7).
- The overall harvest structure of 60% bulls, 17% cows and 23% calves was roughly similar to the 58% bulls, 15% cows and 27% calves reported in the hunter questionnaire survey data for 1987. Minor variation can probably be attributed to sample size and hunters failing to accurately estimate animal ages in the hunter questionnaire responses.
- Analysis by age class indicated that the 1988 harvest consisted of 23.3% calves, 4.2% yearling females, 18.7% yearling males, 11.2% adult cows, and 36.9% adult males (Table 39; Fig. 8). Percentages have remained similar for the last five years which indicates that age classes are stable in the provincial moose population.
- The sex and age breakdown for the special either sex and regular bull-calf seasons showed similar trends with a high proportion of young age class animals.

Table 38. Sex and age composition of the 1988 Saskatchewan moose harvest as calculated from tooth samples.

	Age Class																	
Female	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5[a]	unk[b]	Total
Frequency	144	49	39	20	17	8	8	6	9	6	6	6	2	2	1	11	17	351
Percent	12.3	4.2	3.3	1.7	1.5	0.7	0.7	0.5	0.8	0.5	0.5	0.5	0.2	0.2	0.1	0.1	1.5	29.2
Row Pct	42.2	14.4	11.4	5.9	4.9	2.4	2.4	1.8	2.6	1.8	1.8	1.8	0.6	0.6	0.3	0.3	4.9	
Col Pct	52.8	18.4	17.9	14.8	22.9	20.5	27.6	66.7	56.3	50.0	60.0	60.0	40.0	100.0	100.0	100.0	25.8	
Male	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	unk	Total
Frequency	129	218	179	115	57	31	21	3	7	6	4	4	3	0	0	0	49	826
Percent	11.1	18.7	15.3	9.9	4.9	2.7	1.8	0.3	0.6	0.5	0.3	0.3	0.3	0.0	0.0	0.0	4.2	70.8
Row Pct	15.6	26.4	21.7	13.9	6.9	3.8	2.5	0.4	0.9	0.7	0.5	0.5	0.4	0.0	0.0	0.0	5.9	
Col Pct	47.3	81.7	82.1	85.2	77.0	79.5	72.4	33.3	43.8	50.0	40.0	40.0	60.0	0.0	0.0	0.0	74.2	
Total Frequency	273	267	218	135	74	39	29	9	16	12	10	10	5	2	1	1	66	1167
Percent	23.4	22.9	18.7	11.6	6.3	3.3	2.5	0.8	1.4	1.0	0.9	0.9	0.4	0.2	0.1	0.1	5.7	100.0

[a] Age class 15.5 contains animals 15.5 years and older.

[b] The unk age class represents animals of unknown age.

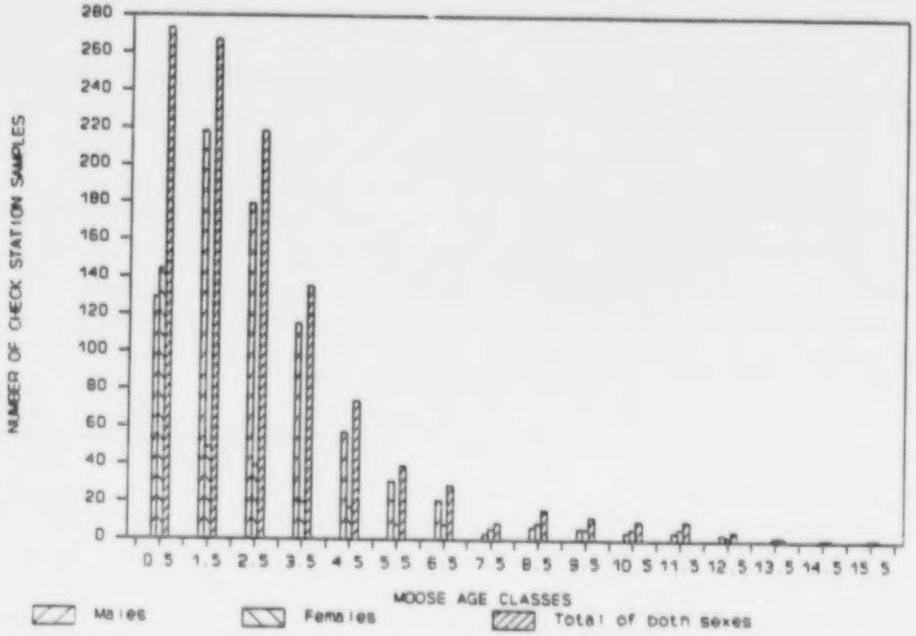


Fig. 7. Sex and age composition of the 1988 moose harvest based on tooth samples. Age class 15.5 contains animals 15.5 years and older.

Table 39. Sex and age class composition of the northern moose harvest based on check station samples, 1984 to 1988.

Age Class		1984			1985			1986			1987			1988	
	Female N=339	Male N=713	Total %	Female N=258	Male N=698	Total %	Female N=261	Male N=835	Total %	Female N=294	Male N=790	Total %	Female N=341	Male N=826	Total %
0.5	12.2	11.5	=23.7	8.8	12.2	=21.0	9.5	12.4	=21.9	11.4	10.51	=21.9	12.3	11.0	=23.3
1.5	4.7	15.6	=20.3	4.9	17.2	=22.1	5.1	20.0	=25.1	4.0	21.5	=25.5	4.2	18.7	=22.9
2.5	1.8	11.1		3.4	14.4		1.9	16.4		2.7	15.4		3.3	15.3	
3.5	1.8	8.1		2.1	9.2		1.4	8.9		2.6	7.9		1.7	9.9	
4.5	1.7	4.6		1.2	4.3		0.7	5.8		.8	4.3		1.5	4.9	
5.5	1.4	3.3		0.4	2.3		0.6	2.3		.7	1.9		.7	2.7	
6.5	2.0	2.5	=48.9[a]	1.6	1.8	=50.3	0.6	1.0	=47.0	.2	1.5	=45.7	.7	1.8	=48.1
7.5	1.4	1.9		0.7	1.5		0.5	1.2		.2	.7		.5	.3	
8.5	1.2	1.6		0.7	1.8		0.8	0.9		.8	.9		.8	.6	
9.5	0.9	0.8		0.6	1.3		0.3	0.9		.6	.7		.5	.5	
10.5+	1.6	1.2		1.6	1.4		1.2	1.6		2.1	1.7		1.5	.9	
Unknown[b]	1.3	5.1		1.1	5.8		1.4	4.7							
Mean Age (All Age Classes)	3.5	3.0		3.1	2.9		2.6	2.7		3.0	2.7		2.6	2.6	
Mean Age (Adult Age Classes 2.5 yrs +)	6.2	4.5		5.8	4.2		5.7	4.1		6.1	4.2		5.4	3.9	

---

[a] Percent total of combined age classes 2.5 years and older.
[b] Unknown age animals not included in the calculations.

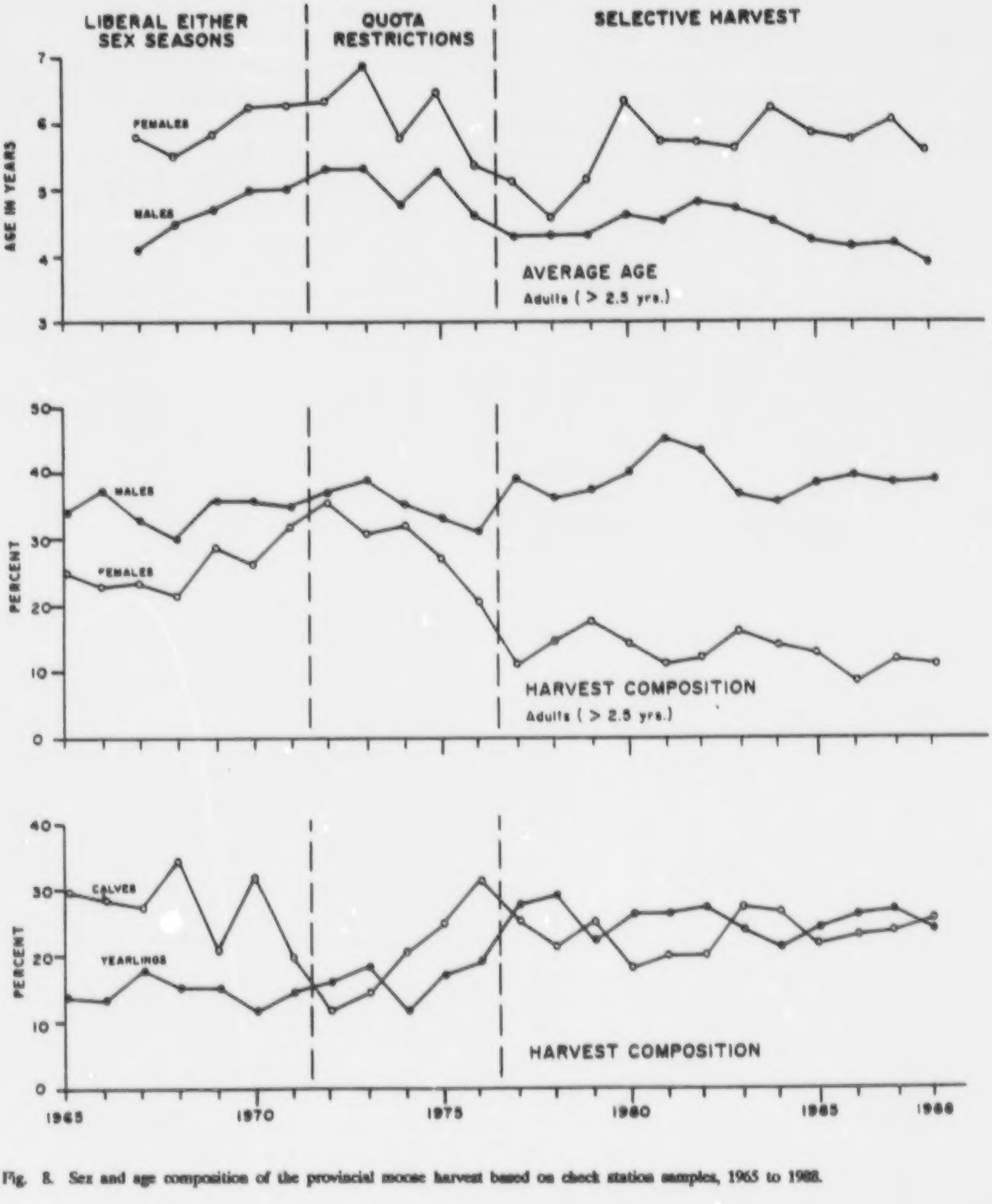


Fig. 8. Sex and age composition of the provincial moose harvest based on check station samples, 1965 to 1988.

4. Archery (WMZ 37 and WMZ 55 and 68, combined)

- Due to the lack of demand for 1987 draw moose licences in the combined WMZ 55 and 68 (quota 100) in 1987 the special archery season in these WMZ was replaced in 1988 with an either-sex regular season which coincided with the rut. The result was that 12 hunters harvested two moose and spent 46 days hunting as compared to the 1987 draw when 25 hunters harvested 5 moose and spent 109 days hunting.
- The 1988 special season in WMZ 37, including Duck Mountain Provincial Park, resulted in 34 hunters harvesting 5 moose and spending 161 days hunting. This was the second year for an archery hunt in Duck Mountain Provincial Park which has a quota of 50 licences. The 1987 season provided 109 days of recreation for 25 hunters who harvested 5 moose.

B. POPULATION STATUS

1. Density: Transect Survey

- In 1988-89 only half the transect blocks for moose were flown (a decision which was made in 1987-88 due to budget restraints) and in the west and central parts of the province, the surveys were carried out in such a manner that the information collected was not directly comparable with previous years' data (Table 40).
- The Connell Creek survey block indicated a drop of approximately 14% falling from the long-term average of 0.89 moose/km² to 0.76 moose/km². In transect surveys, a drop or increase of 20% is not considered significant due to survey design. Also important is that in the Connell Creek block, moose move in and out of the survey area depending on the snow depth in the Pasquia Hills. Snow depths in 1988-89 were low which may have resulted in few moose moving into the survey area, thus resulting in a lower estimate of population density.
- The Greenwater Park survey indicated a drop of 12% from the long-term. The survey data for Greenwater is questionable because of the small number of transect miles flown over the park. Field staff indicate that this population has dropped, perhaps as a consequence the moose tick outbreak in the spring of 1988.

2. Population Estimate: Quadrate Survey

- The density quadrat survey flown in the Porcupine Forest in 1988-89 indicates a growing or stable population (Table 41). Survey results have shown a progressive increase in recent years from 3,092 (±472) in 1983-84, to 3,346 (±565) in 1986-87 and to 3,561 (±676) in 1988-89. Although confidence intervals overlap between all three surveys, the trend shows positive growth.

Table 40. Moose population indices based on transect aerial surveys, 1978 to 1989.

			Moose/Km²														
Area	Zone	Sq Km	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1978-1989 Average	Change From Last Survey (%)	Change From Average (%)
Porcupine East	57	284.9	0.22	0.38	0.48	0.47	0.36	0.58	0.28	0.44	0.45	0.59	0.46	—	0.43	-22	+7
Porcupine West	56	201.0	0.42	0.94	0.59	0.47	0.54	0.68	0.39	0.42	0.67	0.94	0.61	—	0.61	-35	+0
Leaf Lake	58	323.7	0.53	0.44	0.29	0.29	0.50	0.36	0.40	0.36	0.41	—	0.61	—	0.42	+49	+45
Greenwater	56	42.7	0.14	0.28	0.28	0.21	0.19	0.89	0.37	0.52	1.26[a]	0.96	—	0.85	0.51	-12	+40
Cumberland South	60	375.5	0.50	0.59	0.52	0.49	—	0.49	0.43	0.35	0.46	—	0.50	—	0.48	+9	+4
Cumberland Central	60	106.2	0.47	0.50	0.39	0.73	0.41	0.37	0.32	0.44	0.56	0.47	0.48	—	0.47	+0	+0
Pine Bluff	61	119.1	1.21	1.17	0.77	0.91	0.94	0.81	0.83	0.64	0.39	0.74	0.46	—	0.84	-38	-45
Connell Creek[b]	59	116.5	—	—	1.20	1.18	0.71	0.68	0.65	0.82	0.74	1.12	—	0.76	0.89	-32	-15
Candle Lake East	63	251.2	0.15	0.17	0.08	0.15	—	0.12	0.04	0.11	0.10	—	0.004	—	0.04	-60	-67
Torch River	62	196.8	0.34	0.26	0.21	0.21	0.18	0.25	0.10	0.17	0.12	0.22	—	—	0.21	—	—
Dore South	66	626.8	0.13	0.32	0.27	0.19	0.17	0.13	0.07	—	0.09	—	0.11	—	0.16	+22	-31
Waterhen Keeley[c]	69	353.5	0.24	0.28	0.33	0.21	—	—	0.27	0.18	0.11	0.27	—	—	0.24	—	—
Cold Lake	69	248.6	0.26	0.34	0.30	0.29	—	0.20	0.13	0.15	0.19	—	—	—	0.23	—	—
Divide	67	422.2	0.28	0.53	0.46	0.39	0.27	0.19	0.30	0.44	0.26	0.33	0.41	—	0.35	+24	+17
Bronson	68	392.1	0.62	0.51	0.56	0.42	—	0.24	0.49	0.31	0.34	—	0.32	—	0.42	-6	-34

[a] Based on comparable survey blocks.
[b] Revised survey in 1981.
[c] Revised survey in 1980.

Table 41. Moose population estimates[a] based on stratified random quadrat aerial survey sampling, 1982 to 1989.

Survey Block	WMZ	Survey Area Km²	1982-83 Estimate (Moose/Km²)	1983-84 Estimate (Moose/Km²)	1984-85 Estimate (Moose/Km²)	1985-86 Estimate (Moose/Km²)	1986-87 Estimate (Moose/Km²)	1987-88 Estimate (Moose/Km²)	1988-89 Estimate (Moose/Km²)
Bronson	68	3418	1376 ± 22% (0.43/km²)	—	—	—	1457 ± 20% (0.46/km²)	—	—
Cub Hills[b]	63	822	160 ± 32% (0.19/km²)	194 ± 29% (0.35/km²)	282 ± 24% (0.35/km²)	—	276 ± 20% (0.34/km²)	—	309[c] (0.38/km²)
Cumberland South	60	2279	—	1667 ± 20% (0.73/km²)	—	—	1724 ± 20% (0.76/km²)	—	—
Duck Mnt. Park	37	469	228 ± 18% (0.49/km²)	—	—	—	372 ± 22% (0.79/km²)	—	—
Fort a la Corne	50	1401	—	—	—	—	—	427 ± 20%	—
Moose Mnt. Park	33	684	426 ± 20% (0.62/km²)	370 ± 19% (0.54/km²)	356 ± 23% (0.52/km²)	302 ± 20% (0.44/km²)	418 ± 18% (0.61/km²)	—	277 ± 21%
Porcupine	56 & 57	3533	—	3092 ± 15% (0.87/km²)	—	—	3346 ± 17% (0.94/km²)	—	3561 ± 19% (1.00/km²)
Thunder Hills[b]	66	340	97 ± 22% (0.28/km²)	106 ± 26% (0.31/km²)	158 ± 17% (0.46/km²)	—	120 ± 33% (0.35/km²)	—	—
Candle Lake[b]	64	1599	—	—	—	236 ± 23%	—	—	—
Woody Burn	57	1134	—	686 ± 20%	765 ± 18%	—	—	—	—

[a] $P \leq 0.05$

[b] Represent moose restoration project areas; survey design differs slightly from other survey blocks.

[c] Bounds about mean population estimate not calculated.

- In the Cub Hills moose restoration area, a density quadrat survey estimated 309 moose. This restoration project has shown a steady increase from 0.19 moose/km^2 in 1983 to 0.38 moose/km^2 in 1989.

3. Population Structure

- In the Cumberland Delta (WMZ 60 and 61), 452 moose were classified as to sex and age in December 1988. Ratios indicate a drop in the number of calves per cow when compared to 1987 (Table 42). However, the estimated 0.36 calves:cow in WMZ 60 and 0.48 calves:cow in WMZ 61 remains higher than most years prior to 1983. This should result in moose being added to the population. In WMZ 60, 0.73 bulls:cow and 0.45 bulls:cow in WMZ 61 indicated that the bull segment is not jeopardized by the current moose management system.
- In the Cub Hills Moose Restoration Project calf survival has increased dramatically since the 1985-86 survey which indicated 0.43 calves:cow compared to the 1988-89 survey which indicated 0.70 calves:cow. The number of bulls in the population is also high, the 1988-89 survey being 0.80 bulls:cow.
- A total of 594 moose were classified through the Co-operative Wildlife Management Study between September and November 1988 as compared to 631 in 1987. Observers report 0.77 bulls:cow:0.74 calves (27% twinning rate) in 1988 compared to 1.01 bulls:cow:0.71 calves (18% twinning rate) in 1987. The variation between years in the number of bulls and calves per cow can probably be contributed to the small sample sizes.

Table 42. Sex and age composition of the northern moose population based on post-season helicopter observation.

	Bull:Cow:Calf Ratio				
WMZ	1984-85	1985-86	1986-87	1987-88	1988-89
54	—	—	0.26:1:0.69 (76)	—	—
56	0.42:1:0.58 (148)[a]	0.69:1:0.69 (162)	—	—	—
57	0.31:1:0.41 (146)	0.30:1:0.55 (155)	—	—	—
58	0.34:1:0.40 (134)	0.32:1:0.59 (211)	—	—	—
59	0.52:1:0.54 (126)	0.45:1:0.35 (469)	0.56:1:0.52 (200)	—	—
60	0.27:1:0.33 (152)	0.58:1:0.54 (146)	0.60:1:0.60 (110)	0.90:1:0.43 (119)	0.73:1:0.36 (224)
60A[b]	0.48:1:0.48 (253)	0.94:1:0.45 (79)	0.85:1:0.65 (161)	1.00:1:0.81 (90)	—
61	0.40:1:0.51 (254)	0.64:1:0.44 (202)	0.51:1:0.47 (144)	0.72:1:0.50 (160)	0.45:1:0.48 (228)
61A[c]	0.54:1:0.33 (152)	0.56:1:0.42 (71)	0.41:1:0.52 (174)	1.18:1:0.68 (44)	—
63	—	0.61:1:0.43 (90)	0.82:1:0.47 (112)	—	0.80:1:0.70 (122)
64	0.20:1:0.46 (108)	1.24:1:0.39 (87)	—	—	—
66	0.48:1:0.50 (102)	0.50:1:0.41 (88)	0.90:1:0.42 (72)	—	—
67	0.39:1:0.45 (159)	0.39:1:0.55 (170)	—	—	
68	0.42:1:0.65 (163)	0.31:1:0.61 (160)	—	—	—
69	0.43:1:0.51 (164)	0.47:1:0.30 (143)	—	—	—
Commercial Forest	0.41:1:0.49 (1,963)	0.50:1:0.47 (2,233)	0.58:1:0.54 (1,049)	0.86:1:0.56 (413)	0.62:1:0.47 (574)

[a] Sample size.

[b] 60A Lobstick Lake - bear removal study area.

[c] 61A Bearhead Marsh - bear removal study area.

4. Moose Tick Index

- Field reports following the 1987 hunting season and throughout the 1987-88 winter suggested that tick loads on moose were excessively heavy. Concern for calf and yearling survival prompted the Wildlife Branch to survey moose populations in WMZ 56, 59 and 68.
- The late March surveys did identify severe and very severe rubbing by some individual moose but hair loss over the entire sample was not of major concern (Fig. 9).
- It was expected that some mortality would occur indirectly due to tick infestation but not at levels where serious management adjustments would be required for 1989.
- Within the Meadow Lake Region hair loss surveys have been flown annually since 1983 (Fig. 10). A severe outbreak occurred in 1983 which had an important influence on moose populations in that area. Ticks have persisted since that time at higher levels than that recorded for other parts of the Saskatchewan moose range. It is most likely that ticks have had an effect on moose recovery within their western range.

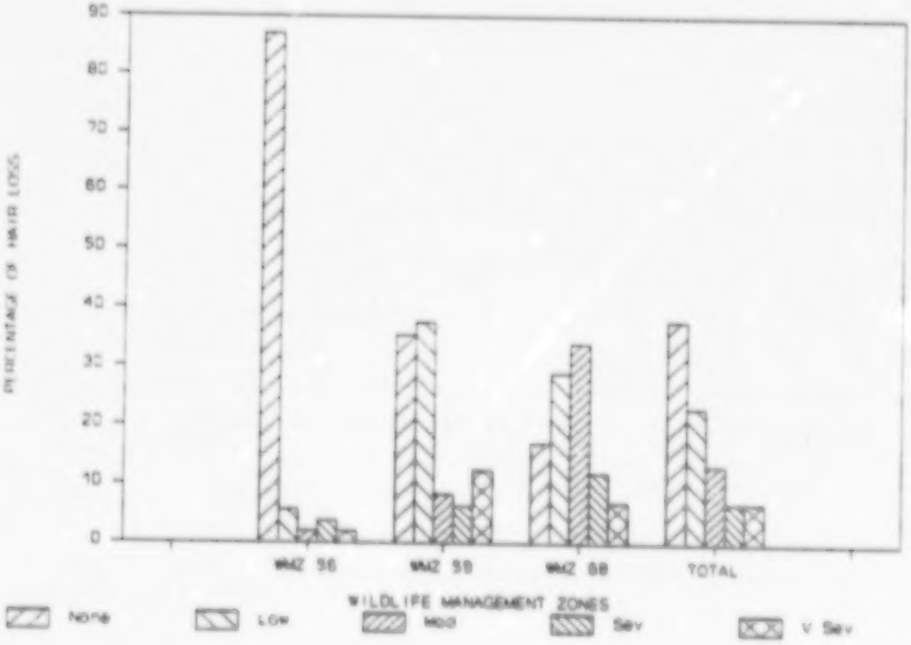


Fig. 9. Moose hair loss/tick infestation index, March 31, 1989 aerial surveys.

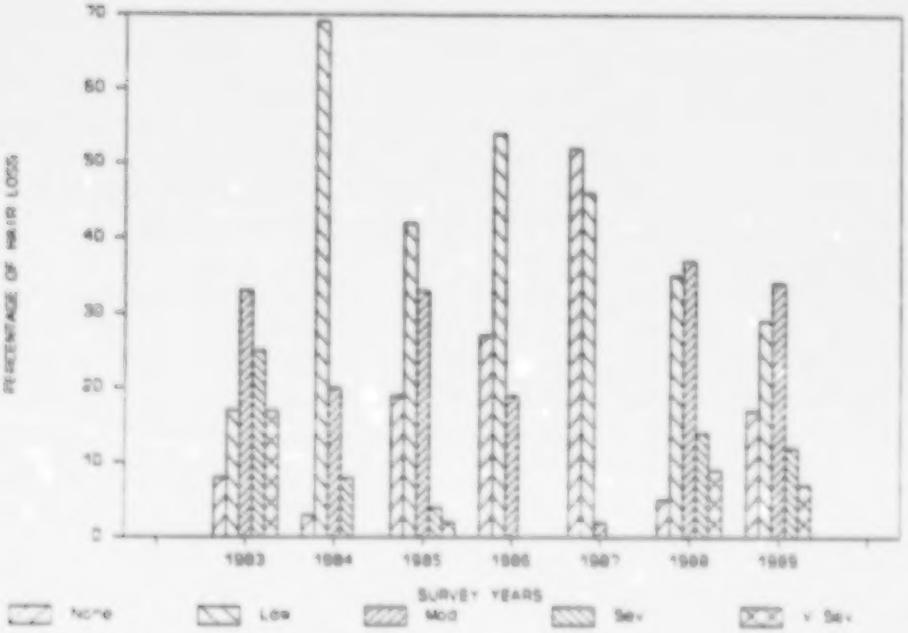


Fig. 10. Moose hair loss/tick indices, northwestern Saskatchewan, 1983 to 1989.

5. Population Status

Cypress Hills Provincial Park (WMZ 6 and 7)

- The population in WMZ 7 remains relatively low owing to poor browse conditions and unregulated harvested in the West Block. The WMZ 6 population continues to demonstrate stability under limited harvest quotas. An aerial survey enumerated 110 moose in 1988-89.

Fort a la Corne Wildlife Management Unit (WMZ 50)

- The 1987-88 survey indicated a population of some 427 ±20% moose which represented a considerable improvement from the 1982-83 survey which indicated a population of 234 ±24%. Data collected during the 1987-88 survey may have overestimated the moose population because the survey was designed for elk. Although no aerial moose surveys were carried out over Fort a la Corne in 1988-89, field reports do not support a conclusion that the moose population has improved as much as the 1987-88 survey indicated. There is no doubt that the current road closure program will provide necessary long-term protection for the moose populations from excessive unregulated hunting.

Duck Mountain Provincial Park (WMZ 37)

- A quadrat survey in January 1987 indicated a population of 372 ±15% compared to 228 ±18% in 1983 (Table 40). The status of the moose population in Duck Mountain Park is believed to be favourable and stable.

Greenwater Provincial Park (WMZ 56)

- The Greenwater moose population is believed to have declined owing to heavy tick infestations in 1987-88. This decline appears to be supported by the 1988-89 transect survey where the herd density dwindled by 12% (Table 40). However, the 1988-89 survey was still 40% above the long-term average, thus a harvestable population is being maintained within the park despite past tick outbreaks.

Moose Mountain Provincial Park (WMZ 33)

- The population continues to fluctuate in the park with 1988-89 estimates indicating a lower population than in 1986-87. The 1988-89 survey indicated a population of 277 ±21% as compared to 418 ±18% in 1986-87. Unregulated harvest continues to remain high and is a major factor limiting population growth.

Thickwood Hills (WMZ 54)

- In WMZ 54 a transect survey indicated a drop of some 76% in the Thickwood Hills from 0.33 moose/km^2 in January 1987 to 0.08/moose km^2 in January 1989. There was some concern about the method used to determine the number of moose/km^2 in 1987, as a smaller block was flown and then used to extrapolate over the entire area.

C. 1989 MANAGEMENT OBJECTIVES

- On the east side of the province moose populations are generally in good or improved status. The Porcupine Forest continues to be the most important area for moose in Saskatchewan. Aerial surveys indicate a stable or growing population which, when one considers the very high sport harvest, is in excellent health. The moose population in the Pasquia Hills and Cumberland Delta are stable.
- With the extensive road closure program in the central part of the province moose populations are stable with perhaps some areas showing signs of growth.
- On the west side populations are generally believed to be slightly lower than 1987-88 levels due mainly to the continued presence of the moose tick and increased access because of seismic activity.

-The 1989 moose management strategy involves the following objectives:

1. For 1989, special season quotas will remain static with the exception of WMZ 54 and WMZ 47, 55 and 68 combined, where special seasons have been eliminated. In WMZ 47, 55 and 68 combined, there will be no special quota because of the loss of moose partially due to moose ticks and the increased access as a result of seismic activity. In WMZ 54 moose hunting will be closed due to the low population as indicated by recent surveys.

2. The early and late regular season structure for Saskatchewan residents will be maintained.

3. Because of concerns expressed by residents of WMZ 70 to 73 over hot weather conditions in late August - early September, the early regular season will be delayed to September 11 to 23. The late season will run from October 2 to December 2. Although a 2 month season appears to be very liberal, a considerable portion of this late season will not be conducive to sport hunter activity because of freeze/thaw conditions in the north. These dates will allow subsistence hunters ample opportunity to harvest a moose regardless of weather conditions.

4. Game preserve and road closure initiatives, rather than season closures, will still be used as a principal management tools to increase populations in the central Forest zones. The impact of the Moose Restoration Program on moose populations will continue to be monitored closely.

5. Guided moose seasons will change little in 1989 except for calendar adjustments and quota adjustments in WMZ 61 (115 to 110 licences) and WMZ 70 (10 to 15 licences). However, date changes will be considered in WMZ 69 to 73, inclusive for the 1990 season. These seasons will coincide with Saskatchewan resident seasons. This will meet the needs of outfitters by offering a continuous season without breaks but at the same time will not jeopardize the moose resource or lead to conflicts with Saskatchewan moose hunters. The last week in September will be missed to avoid a part of the rut.

6. The Cub Hills restoration area will be open for regular moose hunting in 1990. Road corridor game preserves will be established and selective road closures will continue to provide protection to moose along major access corridors.

7. Archery moose season dates will remain the same for 1989 and extend though the peak period of the rut. Low archery hunter participation and harvest does not interfere with the rut, while this timing gives the archers a better chance of success. A quota of 50 special licences will be established for WMZ 37 (Duck Mountain Park) while WMZ 55 and 68 combined, will be open to all resident licence holders for an either-sex moose hunt.

8. Southern Areas

Moose Mountain Provincial Park (WMZ 33)

- The season will remain closed to sport hunters in 1988 due to the low population as indicated by recent surveys. Seasons will remain closed until this population has recovered and can handle a limited quota.

Cypress Hills Provincial Park (WMZ 6 and 7)

- On the basis of apparent stability in the moose population of WMZ 6 a small licence quota (25) will be maintained in 1988. WMZ 7 will remain closed due to a low population and existing unregulated harvest.

Thickwood Hills (WMZ 54)

- The special season in WMZ 54 will be discontinued for 1989 seasons.

Fort a la Corne Wildlife Management Unit (WMZ 50)

- The 1989 licence quota will be reduced to 100 licences. This is in response to a suspected over estimate of population size in the 1987 elk survey and high harvests by both regulated and unregulated hunters.

Duck Mountain Provincial Park (WMZ 37)

- The present 100 licence quota will be retained along with a quota of 50 licences for archery previously mentioned.

Greenwater Lake Provincial Park

- Due to the historic low harvests in Greenwater Park a quota of 50 licences will be maintained in 1989.

D. 1989 MOOSE SEASONS

Special Moose	Zone 6	Oct. 23 - Oct. 28	one moose, either sex	• Licence quotas (in brackets) for each zone: 6(25), 37(100), 50(100), 48, 49 and 56 combined (300), 57(200), 58(200), 59(400), 60(200), 61(100), 62(50), 67(150), Greenwater Lake Provincial Park (50).
	Zones 48, 49 and 56 combined; and Zones 57 to 62 and 67, including Leaf Lake Wildlife Management Unit	Sept. 11 - Sept. 16 & Nov. 6 - Nov. 18	one moose, either sex	
	Zone 37, including Duck Mountain Provincial Park	Nov. 6 - Nov. 18	one moose, either sex	
	Greenwater Lake Provincial Park Only	Nov. 6 - Nov. 18	one moose, either sex	
	Zone 50, including Fort a la Corne Wildlife Management Unit	Sept. 11 - Sept. 23 & Nov. 6 - Nov. 18	one moose, either sex	
Special Moose (Archery)	Zone 37, including Duck Mountain Provincial Park	Sept. 18 - Sept. 30	one moose, either sex	• The archery moose licence in Zone 37 is valid only during the archery season; licence quota (50).
Archery Moose (Sask. Residents Only)	Zones 55 and 68 combined, including Bronson Forest Recreation Site	Sept. 18 - Sept. 30	one moose, either sex	• A regular bull-calf moose licence can be used to harvest any moose by means of a bow during the archery season dates. Unfilled licences can also be used during the regular moose season but only to harvest a bull or 1989 calf moose.
Regular Moose (Sask. Residents Only)	Zones 43, 48, 49, 53, 56 to 67 and 69, including Cookson and Leaf Lake Wildlife Management Units; and Nipawin Provincial Park	Oct. 2 - Oct. 7	one bull or one 1989 calf moose	• "Bull Moose" means a male moose one or more years old. "Calf Moose" means any moose born in 1989. "Cow Moose" means a female moose one or more years old.
Early Season	Zones 70 to 73, including Clearwater River and Lac la Ronge Provincial Parks	Sept. 11 - Sept. 23	one bull or one 1989 calf moose	• Successful applicants for a special moose licence are not eligible to purchase a regular moose licence.
	Zones 74, 75 and 76	Aug. 28 - Oct. 7	one bull or one 1989 calf moose	• The antlers of bull moose and the lower jaw of calf moose must accompany the carcass.
Late Season	Zones 43, 48, 49 and 56 to 59, including Leaf Lake Wildlife Management Unit	Nov. 20 - Dec. 2	one bull or one 1989 calf moose	
	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26, and Zones 53, 55 and 60 to 69, including Cookson Wildlife Management Unit; Nipawin Provincial Park; and Bronson Forest Recreation Site	Nov. 20 - Nov. 25	one bull or one 1989 calf moose	
	Zones 70 to 73, including Clearwater River and Lac la Ronge Provincial Parks	Oct. 2 - Dec. 2	one bull or one 1989 calf moose	
Guided Moose (Canadian Residents and Non-residents)	Zones 60, 61 and 62	Oct. 2 - Oct. 21 & Nov. 6 - Nov. 25	one bull or one 1989 calf moose	• **Persons possessing a guided moose licence may also purchase a white-tailed deer licence and hunt during the moose season dates.**
	Zone 69	Sept. 4 - Sept. 16, Oct. 2 - Oct. 7 & Nov. 13 - Nov. 18	one bull or one 1989 calf moose	• **Services of a registered guide must be used for both species.**
	Zones 70 to 73, including Clearwater River and Lac la Ronge Provincial Parks	Aug. 28 - Sept. 16, Oct. 2 - Oct. 7 & Nov. 6 - Nov. 25	one bull or one 1989 calf moose	• The antlers of bull moose and the lower jaw of calf moose must accompany the carcass.
	Zones 74 to 76	Aug. 28 - Oct. 7	one bull or one 1989 calf moose	• 400 Guided Moose Licences are available directly from outfitters. Quotas (in brackets) for each zone: 60(60), 61(110), 62(15), 69(15), 70(15), 71(45), 72(45), 73(10), 74(45), 75(10), 76(30).

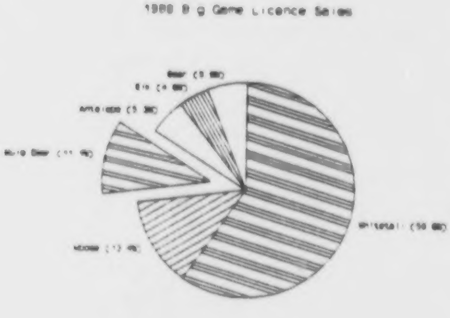
MULE DEER

A. REVIEW OF 1988 HUNTING SEASON

1. Licence Sales

- The either-sex licence sales for all weapon types combined declined by 6.6% owing to quota reductions. Antlerless licence sales increased slightly by 3.6% despite an overall reduction of 13.5% in available licences. Based upon the 1985 to 1988 statistics, hunter demand for antlerless mule deer was approximately 3,300 hunters; 2,600 hunters if only 1987 and 1988 draw applications are considered (Table 2).

Table 43. Provincial mule deer licence sales, 1984-1988[a].



	1984	1985	1986	1987	1988	% Change
Rifle (Regular)						
Either-sex	5,754	6,453	6,836	6,857	6,171	-10.0%
Antlerless	6,331	9,196[b]	4,042	2,029	2,101	+3.5%
Archery						
Either-sex	804	804	946	841	902	+7.3%
Antlerless	—	172	72	52	43	-17.3%
Muzzleloader						
Either-sex	—	—	152	146	253	+73.3%
Antlerless	—	—	123	135	153	+13.3%
Total Sales	12,889	16,625	12,171	10,060	9,623	-4.3%

---

[a] All licence sales represent final sale figures as of June 1 in the following year; however, the data analysis is based on figures available in mid-February.

[b] 9,196 - 2 deer days for each antlerless licence.

2. Hunting Activity and Harvest

- The overall mule deer harvest decreased by 4.9% from 8,058 in 1987 to 7,668 in 1988 as a result of a significant reduction of 1,100 licences (Table 44).
- Regular either-sex rifle hunter success was 87.7% for all WMZ combined, a small decline of 2.0% from 1987 (Table 45).
- Antlerless hunter success was 89.2%, only a slight increase of 1.1% from 1987 despite the lengthening of the rifle season in all WMZ to 6 days (Table 46).

Table 44. Provincial mule deer harvest, 1988.

Ecozone	#Actual Hunters	#Zone Hunters	#Successful Hunters	%Hunter Success	Harvest	Harvest Structure Males:Females:Young (Actual Harvest)	Hunter Days	Hunter Days/ Animal
Grassland[a]	7,337	7,337	6,107	82.0	6,017	1.68:1:0.40 (3,288:1,955:776)	16,115	2.7
Farmland	1,672	1,672	1,374	82.2	1,374	2.20:1:0.25 (877:398:99)	3,745	2.7
Parkland	365	365	277	75.9	277	2.74:1:0.45 (181:66:30)	1,072	3.9
Total	9,374	9,374	7,668	81.1	7,668	1.79:1:0.34 (4,346:2,419:834)	20,932	2.7

[a] Archery and muzzleloading harvest statistics could not be separated by ecozone and, thus were included in Grassland totals as the majority of primitive weapon hunting was done within this ecozone.

Table 45. Estimated hunter success and harvest pressure during the either-sex mule deer rifle season, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
01	406	406	370	91.13	370	6:40:1:0.44	833	2.25	0.1001
02	688	688	609	88.52	609	7.05:1:0.38	1,316	2.16	0.1236
03	55	55	49	89.09	49	6.75:1:0.00	108	2.20	0.0251
04	154	154	144	93.51	144	3.53:1:0.32	284	1.97	0.0349
05	199	199	178	89.45	178	6.40:1:0.07	387	2.17	0.0648
06	249	249	234	93.98	234	4.82:1:0.14	498	2.13	0.1187
07	156	156	141	90.38	141	5.73:1:0.09	347	2.46	0.1831
08	56	56	48	85.71	48	5.00:1:1.25	92	1.92	0.0271
09	399	399	346	86.72	346	7.70:1:0.35	697	2.01	0.2029
10	694	694	635	91.50	635	4.67:1:0.40	1,204	1.90	0.3395
11	50	50	45	90.00	45	3.83:1:0.33	98	2.18	0.0994
12	100	100	86	86.00	86	5.25:1:0.25	160	1.86	0.4651
13	396	396	355	89.65	355	4.24:1:0.15	730	2.06	0.1787
14	616	616	502	81.49	502	3.73:1:0.35	1,248	2.49	0.2236
Total	4,217	4,217	3,742	88.74	3,742	5.19:1:0.31	8,003	2.14	0.1235
Farmland									
18	56	56	49	87.50	49	4.00:1:0.40	121	2.47	0.0162
19	312	312	260	83.33	260	3.47:1:0.16	571	2.20	0.0619
23	262	262	199	75.95	199	3.94:1:0.44	695	3.49	0.1210
24	155	155	135	87.10	135	2.91:1:0.05	317	2.35	0.0656
25	160	160	150	93.75	150	3.56:1:0.19	274	1.83	0.0470
26	164	164	155	94.51	155	2.55:1:0.10	354	2.28	0.0801
27	106	106	98	92.45	98	2.44:1:0.38	207	2.11	0.0421
29	156	156	113	72.44	113	2.13:1:0.40	456	4.04	0.0855
30	125	125	78	62.40	78	1.73:1:0.13	374	4.79	0.0515
Total	1,497	1,497	1,238	82.70	1,238	2.96:1:0.23	3,367	2.72	0.0370
Parkland									
45	107	107	83	77.57	83	1.71:1:0.29	301	3.63	0.0392
46	259	259	188	72.59	188	3.47:1:0.42	771	4.10	0.1293
Total	365	365	271	74.25	271	2.74:1:0.36	1,072	3.96	0.0108

Table 46. Estimated hunter success and harvest pressure during the antlerless mule deer rifle season, 1988.

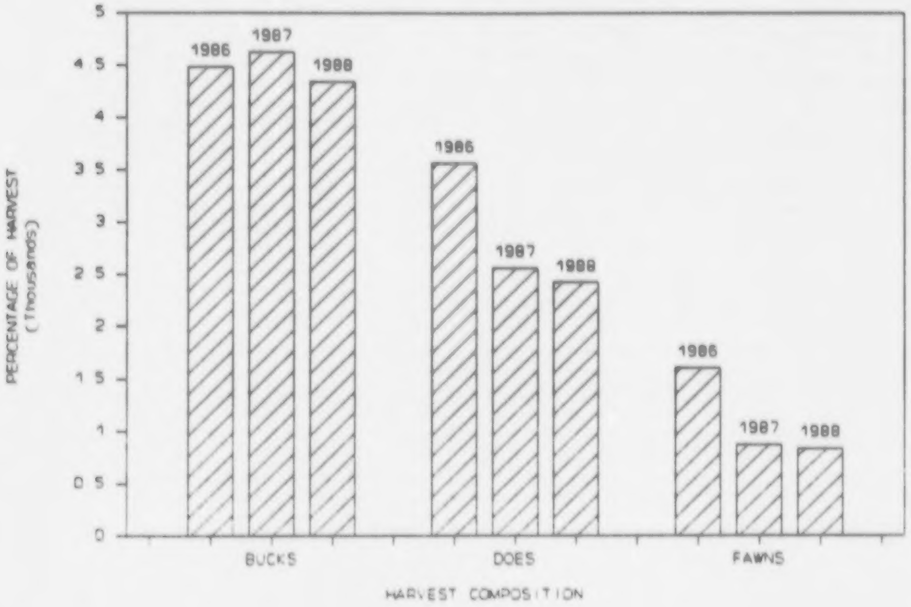
WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km^2 In Zone
Grassland									
01	129	129	107	82.95	107	0.02:1:0.18	247	2.31	0.0296
02	189	189	164	86.77	164	0.00:1:0.20	343	2.09	0.0322
04	82	82	77	93.90	77	0.00:1:0.54	147	1.91	0.0181
05	102	102	96	94.12	96	0.03:1:0.25	152	1.58	0.0254
06	112	102	93	91.18	93	0.00:1:0.22	172	1.85	0.0410
09	110	110	99	90.00	99	0.04:1:0.36	166	1.68	0.0483
10	974	974	887	91.07	887	0.02:1:0.49	1,402	1.58	0.3953
11	124	124	113	91.13	113	0.03:1:0.53	211	1.87	0.2142
Total	1,813	1,813	1,636	90.24	1,636	0.02:1:0.39	2,839	1.74	0.0438
Farmland									
19	175	175	130	74.29	130	0.00:1:0.28	378	2.91	0.0409
Total	175	175	130	74.29	130	0.00:1:0.28	378	2.91	0.0041

- Recreation days totalled 20,932, a 2.3% decline from 21,418 days in 1986 (Table 47).
- Hunter-days per animal declined 6.0% from 1.9 in 1987 to 1.8 in 1988 for the antlerless rifle seasons but remained constant at 2.3 days for either-sex rifle seasons in both 1987 and 1988 (Tables 45 and 46).
- The number of days required to harvest an antlerless deer in 1987, as measured by hunter-days per animal, increased from the 1983-85 levels, so that only 0.4 hunter-days/animal separated either-sex from antlerless rifle season hunters. However, in 1988 this trend was reversed with antlerless hunters spending less time in the field, probably an indication of improving mule deer populations.

3. Harvest Structure

Hunter Questionnaire Survey

- The either-sex rifle season buck to doe ratio in the prime mule deer Grassland WMZ was 5.19 males:female, considerably higher than 2.96 and 2.74 males:female in the Farmland and Parkland harvests, respectively (Table 45). In WMZ with relatively high mule deer densities, hunters tend to select for bucks provided they observe large numbers of deer during their hunt (Fig. 11). For all seasons and ecozones combined the ratio of 1.79 bucks:doe was slightly lower than 1.81 bucks:doe in the 1987 harvest but represents little, if any, change in harvest proportions between the two years (Table 47). Fewer antlerless animals were taken in the 1988 either-sex seasons as a consequence of the lower licence quotas. However, the proportion of antlerless to bucks remained constant at approximately 25% of the harvest (Fig. 11).



[a]Actual hunters and licence quotas:
1986 - 11,702 hunters; 8,100 either-sex and 6,300 antlerless.
1987 - 9,587 hunters; 8,000 either-sex and 2,900 antlerless.
1988 - 9,374 hunters; 7,250 either-sex and 2,550 antlerless.

Fig. 11. Composition of provincial mule deer harvest from all ecozones and all season types 1986 to 1988, inclusive[a].

Table 47. Provincial mule deer harvest structure and recreation days, 1987 and 1988.

	1987				1988			
Season	Harvest	Harvest Structure M:F:Y	Hunter Days	Hunter Days/ Animal	Harvest	Harvest Structure M:F:Y	Hunter Days	Hunter Days/ Animal
Either-sex								
Rifle	5,929	3.79:1:0.29	13,602	2.3	5,329	4.32:1:0.37	12,442	2.3
Archery	263	1.99:1:0.30	3,681	13.9	261	2.26:1:0.45	3,953	15.2
Muzzleloader	101	2.13:1:0.16	445	4.4	177	2.29:1:0.25	746	4.2
Total	6,293	3.64:1:0.29	17,728	2.8	5,767	4.09:1:0.37	17,141	2.9
Antlerless								
Rifle	1,651	0.00:1:0.38	3,187	1.9	1,773	0.00:1:0.39	3,217	1.8
Archery	15	0.00:1:0.25	166	11.1	7	0.00:1:0.00	158	22.6
Muzzleloader	99	0.00:1:0.72	337	3.4	122	0.00:1:0.21	416	3.4
Total	1,765	0.00:1:0.39	3,690	2.1	1,902	0.00:1:0.38	3,791	1.9
All Seasons Combined	8,058	1.81:1:0.34	21,418	2.7	7,669	1.79:1:0.34	20,932	2.7

- The antlerless seasons resulted in approximately the same number and proportion of does to fawns being harvested as in 1987 despite a reduction of antlerless licence quotas in 1988 (Table 47).

SIAST Check Station

- Students from the Saskatchewan Institute of Applied Science and Technology, Prince Albert operated one check station near the Yeast Ranch in WMZ 10. Their objective was to analyze shot placement and wounding loss by mule deer hunters. The station was open all six days of the either-sex seasons (split - Nov. 7 to 9 and Nov. 10 to 12) and the first two days of the antlerless season (Nov. 14 to 19).
- Fifty-six (56) either-sex hunters and 81 antlerless hunters reported to the station producing a combined checked harvest of 1.38 bucks:doe:1.35 fawns (Fig. 12). In the either-sex seasons 71% of the hunters bagged out the first day while 23% and 5% completed their hunt on the second and third days, respectively. Bucks 1.5 years and older constituted 86% of the either-sex harvest. In the antlerless season 59% of the deer checked were fawns. This was quite a departure from the 30-35% proportions collected at SPRC check stations from 1984 to 1986, inclusive and the 1988 Hunter Questionnaire statistics of 32%.

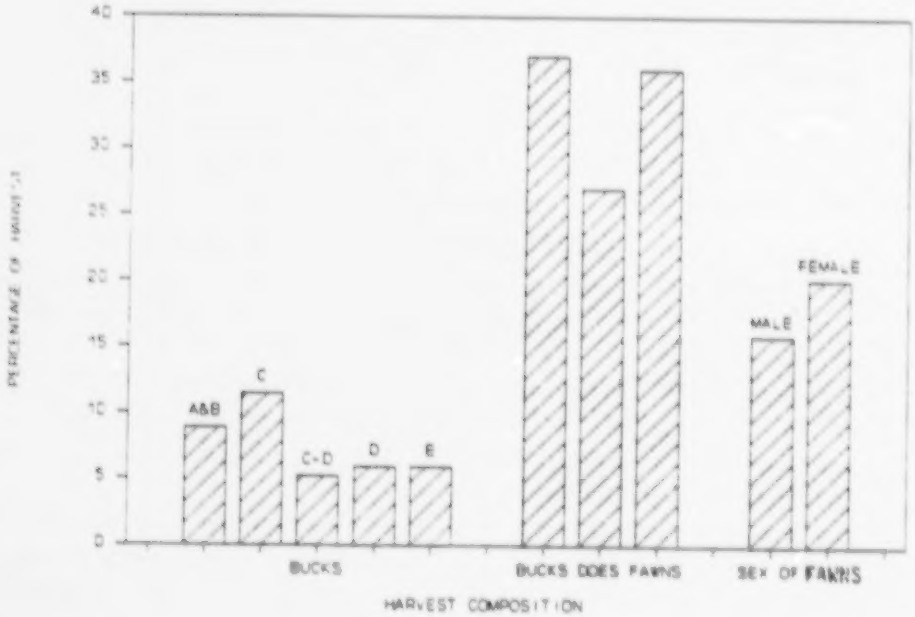


Fig. 12. SIAST check station: Antler configuration of bucks and sex/age composition of either sex and antlerless seasons in WMZ 10, 1988; refer to Appendix 4 for antler classifications.

- Second split hunters were just as successful in harvesting bucks as were first split hunters (1st split-9.67:1:0.00; 2nd split-9.50:1:1.50). There was little difference between the percentage of mature bucks taken in either split indicating equivalent hunting quality regardless of season split.
- Twenty-six percent (26%) of the hunters missed the deer they ultimately tagged at least once; the average for all hunters combined being 1.6 shots per deer tagged. More importantly 53% of the hunters shot at more than one deer, the mean for all hunters being 2.5 deer (includes checked animal). Examination of wounds revealed 26% of the first shots which hit the animal were in non-fatal areas and 19% of the deer had 2 or more wounds other than the finishing shot to the head. Hunters reported hitting their animal in the region they were aiming for only 26% of the time, (ie. one out of four made their desired shot). There was no significant difference between either-sex hunters and antlerless hunters.
- A 3.55 km^2 study block was monitored through the rifle seasons to ascertain hunter use. Traffic counters and personal observations kept track of hunter occurrence and activity. Immediately following the hunting seasons a dead deer search turned up four shot and left mule deer, one of which was presumed to have been from the primitive weapons season. A crippling loss factor of 0.85 to 1.13 deer per km^2 was calculated and when projected over the 827 km^2 of critical mule deer habitat for WMZ 10, possible wounding losses could equal 703 to 935 mule deer in the 1988 rifle seasons. Although sample sizes are small and may not represent accurate projections for the entire WMZ 10, the above loss factor portrays a 46% to 61% loss in addition to the combined rifle harvest of 1540 mule deer.

4. Archery

- A total of 902 active bowhunters harvested 259 mule deer on either-sex and antlerless licences in 1988 (Table 48). Hunter success dropped somewhat and hunter-days per animal increased as archers spent more time afield after mule deer as compared to 1987.
- Hunters in the either-sex season in combined WMZ 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 45 and 46 experienced a success rate of 29.3%, a decline from 32.5% in 1987, while hunter success in WMZ 9 and 10 also declined from 41.3% to 34.9%.
- The success rate for the antlerless season in combined WMZ 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 45 and 46 dropped from 25.8% in 1987 to 20.0% in 1987. The success rate in WMZ 9 and 10 demonstrated the greatest decrease going from 53.9% in 1987 to 11.1% in 1988.

Table 48. Estimated hunter success and harvest pressure during the mule deer archery season, 1988.

Grassland WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Hunter Days	Hunter Days/ Animal	Days/km² In Zone
Either-sex									
01[a]	721	721	205	28.43	205	2.48:1:0.44	3,371	16.44	0.4051
09[b]	143	143	48	33.57	48	1.63:1:0.00	582	12.13	0.1694
Total	864	864	252	29.17	252	2.26:1:0.33	3,953	15.69	0.0610
Antlerless									
01	20	20	4	20.00	4	0.33:1:0.00	81	20.25	0.0097
09	18	18	2	11.11	2	0.00:1:0.00	76	38.00	0.0221
Total	38	38	7	18.42	7	0.20:1:0.00	158	22.57	0.0024

[a] Combined WMZ 1 to 8, 13 to 15, 18 to 27, 29, 30, 45 and 46.
[b] Combined WMZ 9 and 10.

- The either-sex harvest structure was 2.26 bucks:doe:0.45 fawns compared to 1.98 bucks:doe:0.30 fawns in 1987. Archers sampled in the 1988 Hunter Questionnaire survey reported no fawns being taken in the antlerless season and only 7 does.

5. Muzzleloading

- As in 1987, muzzleloading hunters had a very successful season with 405 hunters in the field harvesting 297 mule deer, a significant increase from 1987 owing to an increase of 100 licences in either-sex quotas (Table 49).
- Hunter success was estimated to be 71.7% in the either-sex season and 75.9% in the antlerless season compared to 73.2% and 77.9%, respectively, in 1987. An average of 3.9 days were required for a muzzleloading hunter to harvest an animal.
- The either-sex harvest structure for WMZ 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 was 2.22 bucks:doe:0.22 fawns compared to 2.70 bucks:doe:0.30 fawns in 1987, while for WMZ 9 and 10, 2.50 buck:doe:0.33 fawns as compared to 1.60 bucks:doe:0.00 fawns were harvested. Fewer fawns were taken in the antlerless season than in 1987 despite an overall antlerless harvest increase from 99 to 122.

B. POPULATION STATUS

1. Density Estimates

- Post-season transect surveys were completed in WMZ 9, 10, 11 and 12 as a result of adequate snow cover in December and January. Transects were stratified following the surveys and confidence limits and bounds placed on each population estimate (Table 50).

Table 49. Estimated hunter success and harvest pressure during the mule deer muzzleloading season, 1988.

Grassland WMZ	# Actual Hunters	# Zone Hunters	# Success Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Either-sex									
01[a]	195	195	131	67.18	131	2.22:1:0.17	585	4.47	0.0703
09[b]	52	52	44	84.62	44	2.5:1:0.33	160	3.64	0.0465
Total	247	247	175	70.85	175	2.29:1:0.21	746	4.26	0.0115
Antlerless									
01	105	105	77	73.33	80	0.07:1:0.17	317	3.96	0.0380
09	53	53	43	81.13	43	0.00:1:0.31	100	2.33	0.0291
Total	158	158	120	75.95	122	0.04:1:0.22	416	3.41	0.0064

[a] Combined WMZ 1 to 8, 13, 14, 18 to 27, 29, 30, 43 and 46.
[b] Combined WMZ 9 and 10.

Table 50. Mule deer pre-season herd structure (November 1 & 2, 1988) and post-season population estimates (December 1988 to January 1989) in sandhill complexes.

WMZ	Pre-season Sex/age Composition[a] (males:doe:fawn)	Mature Bucks/Does[b]	Yearling Bucks/Does[c]	Percent Does With Fawns[d]	Post-season Estimated Population	Density
9[e]	0.65(±7):1:0.77(±8)	0.28(±4):1.00	0.19(±3):1.00	59.6%	792(±261)	7.2/km²
10	0.66(±9):1:0.82(±11)	0.38(±6):1.00	0.14(±4):1.00	62.2%	7,411(±806)	8.5/km²
11	0.43(±10):1:1.01(±17)	0.16(±5):1.00	0.16(±5):1.00	67.7%	1,212(±347)	14.4/km²[f]
12	0.62(±14):1:1.08(±20)	0.24(±7):1.00	0.23(±7):1.00	62.2%	1,432(±276)	7.8/km²

[a] Ratios not significantly different ($X^2 < X^2_{95,4} = 9.49$).
[b] Ratios not significantly different ($X^2 < X^2_{95,4} = 9.49$).
[c] Ratios not significantly different ($X^2 < X^2_{95,4} = 9.49$).
[d] Percentages not significantly different ($X^2 < X^2_{95,4} = 9.49$).
[e] Amalgamation of WMZ 9 1988 Co-operative Wildlife Management Study results and pre-season helicopter sex/age observations for the southern portion of WMZ 10.
[f] WMZ 11 density was significantly different ($P < 0.01$) from the other three WMZ densities.

Plot of Treatment Confidence Intervals (P=95%)

```
WMZ 9                             ....O....

WMZ 10                 ...........O...........

WMZ 11                                      ...........O...........

WMZ 12                    ........O........
```

- Densities were statistically similar for all survey blocks <u>except</u> the Burstall Sandhills (WMZ 11) which had densities much higher than the other sandhill complexes (Table 50).
- When compared to the 1983-86 average densities, WMZ 9 and 12 were somewhat higher while WMZ 10 remained below peak levels of 11.5/km² and 10.1/km² in 1984-85 and 1985-86, respectively and below the mean of 9.5/km².

- WMZ 10 was subdivided by ranch or pasture association and a population estimate calculated for each (Table 51). The Yeast Ranch had a significantly greater density of mule deer than all other ranches/pastures except the Millie Community Pasture (that portion within WMZ 10) while the Millie was significantly greater than Signal Valley Co-op Pasture and the Watson Brothers Ranch.

Table 51. Analysis of the December 15 and 16, 1988 linear transect survey of WMZ 10. Ranches/pastures are compared between one another.

Analysis of Variance Table

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio	Probability
Among Groups	8	1209.472	151.18	5.35	0.000
Within Groups	666	18813.71	28.24		
Adjustment Total	674	20023.19			

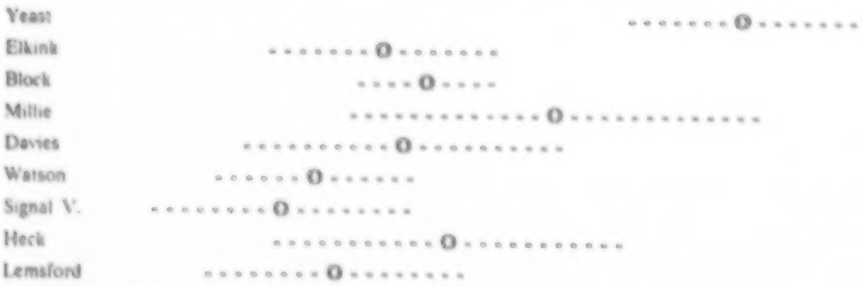
Table of Means and Errors

Ranch/Pasture[a]	Mean	Std. Error	No. Observations
Signal Valley	1.43	0.69	58
Watson	1.69	0.48	123
Lemsford	2.08	0.78	46
Elkink	2.17	0.59	81
Davies	2.61	0.89	36
Block	2.74	0.37	211
Heck Co-op	3.15	0.94	32
Millie	4.35	1.19	20
Yeast	6.32	0.64	68

95% Confidence Interval Values

Ranch Pasture	Lower Limit	Mean	Upper Limit
Yeast[b]	5.06	6.32	7.59
Elkink	1.01	2.17	3.33
Block	2.03	2.74	3.46
Millie[c]	2.02	4.35	6.68
Davies	0.87	2.61	4.35
Watson	0.76	1.70	2.64
Signal Valley	0.07	1.43	2.80
Heck Co-op	1.31	3.16	5.00
Lemsford	0.55	2.09	3.62

Plot of Treatment Confidence Intervals



---

[a] Ranch/pastures arranged in ascending order of mean values.

[b] Yeast Ranch values significantly higher ($P<0.01$) than all other ranches/pastures except the Millie Community Pasture.

[c] Millie Community Pasture values significantly higher ($P<0.05$) than Signal Valley Co-op Pasture and the Watson Brothers Ranch.

2. Population Structure: Pre-season Helicopter Survey

- Mule deer sex and age surveys were flown in early November before the 1988 hunting season. Slightly more than 1,400 mule deer were classified in WMZ 10, 11 and 12 combined (Table 50). Buck to doe ratios, when compared to overall population sizes were quite adequate for the 1988 hunting licence allocations and for herd composition into the 1989 season. Fawn to doe ratios remained high despite possible impacts on fawn survival due to the drought.
- WMZ 10 was subdivided by ranch or pasture association similar to the transect survey. In this case, however, the Yeast Ranch and Millie Community Pasture were combined as well as the Signal Valley, Heck and Lemsford Stockman co-op pastures (Table 52). Sex and age ratios varied between ranch/pasture but were not significantly different although densities, as we have seen above, did vary between the southwest portion and the rest of WMZ 10.

Table 52. Mule deer pre-season herd structure (November 1, 1988) and post-season population estimates (December 15 and 16, 1988) for WMZ 10 Great Sandhills (alpha=0.10).

Ranch/Pasture	Pre-season Sex/age Composition[a] (males:doe:fawns)	Mature Bucks Does[b]	Post-season Estimated Population	Density
Yeast and Millie	0.55(±15):1:0.84(±21)	0.32(±11):1.00	2005(±402) (Yeast 1,605 ±358 Millie 378 ±175)	18.2/km²[c] (Yeast 19.5/km² Millie 13.4/km²)
Elkink	0.81(±25):1:0.83(±25)	0.38(±15):1.00	727(±284)	6.7/km²
Bloch	0.73(±20):1:0.73(±19)	0.50(±15):1.00	2222(±429)	8.5/km²
Davies	0.87(±53):1:0.47(±35)	0.53(±38):1.00	376(±142)	8.1/km²
Watson	0.55(±26):1:0.79(±28)	0.28(±15):1.00	891(±311)	5.3/km²
Co-op Pastures	0.61(±26):1:0.79(±31)	0.34(±18):1.00	1112(±262) (Heck 461 ±186 Lemsford 355 ±149 Signal 320 ±127)	6.4/km² (Heck 9.8/km² Lemsford 6.5/km² Signal 4.4/km²)
WMZ 10 Totals	0.66(±9):1:0.82(±11)	0.38(±6):1.00	7411(±806)	8.5/km²

[a] Ratios between ranches/pastures were not significantly different ($X^2 = 7.04$; $X^2_{.95,10} = 18.31$).
[b] Ratios between ranches/pastures were not significantly different ($X^2 = 4.21$; $X^2_{.95,5} = 11.07$).
[c] Yeast and Millie density was significantly greater ($P < 0.01$) compared to other ranches/pastures.

3. Population Structure: Co-operative Wildlife Management Study

- Total pre-season observations in all ecozones improved moderately from 1987 levels. Provincially, observations increased by 22.5% from 6,492 in 1987 to 7,951 in 1988 (Table 53).

Table 53. Provincial mule deer population structure based on pre-season field observations, September to November 1985 to 1988.

Ecological Zone	Males[a] / Females 1985	1986	1987	1988	Fawns / Females 1985	1986	1987	1986	Sample Sizes (n) 1985	1986	1987	1988
Grassland	0.40	0.41	0.47	0.57	0.82	0.79	0.90	0.89	3,753	6,487	3,839	4,371
Farmland	0.41	0.34	0.37	0.44	0.71	0.70	0.62	0.69	1,331	2,807	2,163	2,764
Parkland	0.33	0.36	0.31	0.37	0.54	0.76	0.71	0.84	176	585	373	728
Fringe	0.43	0.37	0.17	0.19	1.29	0.58	0.56	0.23	19	37	31	44
Forest	1.25	0.61	0.49	0.36	0.25	0.61	0.61	0.64	10	69	86	44
All Zones	0.40	0.38	0.42	0.50	0.78	0.76	0.78	0.80	5,289	10,033	6,492	7,951

[a] Males/females = yearling males + mature males + unclassified adult males/total adult females.

- The provincial pre-season buck to doe ratio increased from 0.42 bucks:doe in 1987 to 0.50 bucks:doe in 1988 (Table 53). The increase was most noticeable in the Grassland WMZ where combined ratios increased from 47 to 57 bucks:doe, the highest recorded male to female ratios in the history of the CWMS (Table 54). These ratio changes are partially due to moderate antlerless quotas during the past two hunting seasons. The ratios also suggest that there are reasonably good buck densities in the population from the perspective of meeting sporthunter demand in 1989 and into the early 1990's. Yearling bucks comprised 36% of the pre-season male population, identical to the 36% yearlings observed in 1987, and again suggesting good fawn survival during the mild 1987-88 winter (Table 55).

Table 54. Grassland mule deer population structure based on pre-season field observations, September to November 1988.

WMZ	Number of Deer Males	Does	Fawns	Sample (n)	Males[a] / Females	Fawns / Females
1	78	201	210	489	0.39	1.04
2	133	213	226	572	0.62	1.06
3	4	8	7	19	0.50	0.88
4	12	28	18	58	0.43	0.64
5	92	100	93	285	0.92	0.93
6	195	294	211	700	0.66	0.72
7	16	46	59	121	0.35	1.28
8	27	46	45	118	0.59	0.98
9	40	61	38	139	0.66	0.62
10	122	246	181	549	0.50	0.74
11	3	11	12	26	0.27	1.09
12	1	4	4	9	0.25	1.00
13	192	253	281	726	0.76	1.11
14	100	267	193	560	0.37	0.72
Total (Percent)	1015 (23%)	1778 (41%)	1578 (36%)	4371	0.57	0.89

[a] Males = Yearling males, teen males, mature males and unclassified males.
= Yearling males = Antler Class A, B as per Co-operative Wildlife Management Study.
= Teen males = Antler Class C as per Co-operative Wildlife Management Study.
= Mature males = Antler Class D, E as per Co-operative Management Study.

Table 55. Percentage of yearling[a] and mature males[b] in the provincial mule deer population based on pre-season field observations, September to November 1986 to 1988.

Ecological Zone[c]	1986 % Yearlings	1986 % Mature	1986 Sample Size (n)	1987 % Yearlings	1987 % Mature	1987 Sample Size (n)	1988 % Yearlings	1988 % Mature	1988 Sample Size (n)
Grassland	32	68	1,186	36	64	704	34	36	712
Farmland	33	67	468	37	63	372	39	34	421
Parkland	18	82	99	16	84	68	36	27	74
Fringe	–	–	7	–	–	3	17	67	5
Forest	–	–	19	–	–	20	25	38	5
All Zones	32	68	1,778	36	64	1,153	36	35	1,217

[a] Antler classes A and B from the Co-operative Wildlife Management Study; refer to Appendix 4.
[b] Antler classes D and E from the Co-operative Wildlife Management Study; refer to Appendix 4.
[c] Sample sizes for the Parkland, Fringe and Forest ecozones are extremely small and percentages are subject to a high degree of error.

- Fawn production of 0.78 fawns:doe for all ecozones combined (Table 53) was slightly higher than in 1987. The percentage of does with twins in the pre-hunt population declined in 1988 but still remains above the 1983-87 average (Table 56). Does without fawns dropped in 1988, being 46% of the doe population.
- Based upon field reports and pre-season observations the mule deer resource continues to expand outside the key Grassland ecosystem. In 1983 only 15% of the pre-season observations came from ecozones outside the Grassland zones and observations continue to increase from 29% in 1984, 30% in 1985, 35% in 1986 and 41% in 1987 to 45% in 1988.

Table 56. Percentage of mule deer does with and without fawns based on pre-season field observations, September to November 1986 to 1988.

Ecological Zone[a]	1986 Single	1986 Twins	1986 Triplets	1986 Without Fawns	1987 Single	1987 Twins	1987 Triplets	1987 Without Fawns	1988 Single	1988 Twins	1988 Triplets	1988 Without Fawns
Grassland	58	34	3	46	45	52	3	43	52	45	2	41
Farmland	66	32	2	48	55	40	5	59	60	38	2	51
Parkland	57	42	1	47	40	58	2	56	49	46	4	46
Fringe	17	83	0	68	100	0	0	44	80	20	0	81
Forest	86	14	0	46	57	43	0	57	33	67	0	62
All Zones	61	37	3	47	48	48	3	50	54	43	2	46

[a] Sample sizes for the Parkland, Fringe and Forest ecozones are extremely small and percentages are subject to a high degree of error.

4. Impact of the 1988 Drought

- A study to ascertain doe fecundity rates was carried out in the spring of 1988. Findings revealed that the average fetus per doe for that particular year was 1.5 fawns:doe regardless of the doe's age.

- When compared with the pre-season helicopter survey, ratios dropped to 0.95 fawns:mature doe (≥2 years old) indicating a pre-season mortality factor of 36.8%.
- Normal pre-season mortality is thought to be approximately 25%, however, other factors may have played a role in this higher than normal fawn mortality rate and a definitive conclusion that drought was the major contributor would be questionable. Regardless of the effects of the 1988 drought, mule deer fawn to doe ratios remained at a level conducive to good recruitment for 1989.
- Proper antler development can be influenced by nutrition. The SIAST check station results revealed that 16% of the bucks had nontypical or class E antler configurations (Fig. 12; Appendix 4). Past check stations recorded much lower percentages of nontypical bucks in their samples.

C. 1989 MANAGEMENT OBJECTIVES

- Through the mid-1980's the overall management strategy for mule deer was to stabilize populations in high density areas, thus reducing potential over-utilization of habitat and balancing numbers to a level tolerable to landowners and the hunting public.
- The strategy adopted involved selective harvest techniques. Antlerless seasons lowered the reproductive potential of the population (does) and harvested the young, already highly predisposed to natural winter mortality . Either-sex season quotas (75% of the harvest is bucks) were apportioned in a way that afforded quality opportunity for hunters, yet, maintained buck proportions suitable for breeding.

- **The 1989 mule deer management strategy involves the following objectives:**

1. Antlerless seasons have become an integral component of the Saskatchewan mule deer management strategy. In the primary Grassland WMZ the objective will be to manage deer for a moderate population growth but also to ensure that the antlerless component does not expand as rapidly as what occurred in the mid-1980's. To accomplish this objective four additional WMZ (8, 12, 13 (east of Highway #4) and 46) have been listed for antlerless seasons in 1989 and licence quotas for all weapon types combined will increase by 101%.

2. A moderate increase of 8.3% in either-sex quotas will ensure sufficient yearling and mature buck survival for future breeding needs and recreational demand.

3. Mule deer populations in the Farmland and Parkland WMZ continue to grow. Licence quotas will remain similar to 1988 to allow for further growth in these peripheral herds. New seasons will be offered in WMZ 44 and 47 owing to this growth in mule deer herds.

4. Hunter distribution has been a chronic problem in WMZ 10. As demonstrated in Tables 50 and 51 the southwest portion had an extremely high density of mule deer compared to the rest of the WMZ. The 1989 objectives will be to allow the population to grow slightly in most of the WMZ to approximately 8.5 deer/km² post-season while reducing the density in the southwestern section from 18.2 deer/km² to approximately 9.1 deer/km². To accomplish these objectives Wildlife Branch will operate check stations and inducements in the form of prizes will be offered to antlerless hunters who hunt and harvest a mule deer in this area of WMZ 10.

5. For 1989 total licence quotas (all weapon types combined) will increase by 32.4% from 9,800 licences in 1988 to 12,975 licences (Tables 57 and 58). Important mule deer season and licence quota changes are reviewed below:

Table 57. Mule deer licence quotas for rifle seasons, 1984 to 1989.

	Either Sex Seasons						Antlerless Seasons					Total 1989 Licences
WMZ	1985	1986	1987	1988	1989	WMZ	1985	1986	1987	1988	1989	
1	100	100	250	400	400	1	75[a]	75	250	300	300	700
2	1,100	1,000	900	700	750[b]	2	3,000[a]	1,000	200	200	400	1,150
3	300	300	150	50	50	3	100	75	0	0	0	50
4	75	100	150	150	150	4	0	150	150	150	150	300
5	300	300	200	200	200	5	300	200	0	100	200	400
6	400	400	300	250	250	6	500	500	200	100	200	450
7	300	300	150	150	200	7	200	200	200	0	0	200
8	50	50	50	50	50	8	50	50	100	0	100	150
9	500	500	500	400	500[b]	9	1,000[b]	500	100	100	400	900
10	800	800	800	700	700[b]	10	6,000[a]	1,200	600	1,000	2,000[b]	2,700
11	0	50	50	50	50	11	900[a]	100	100	100	400[b]	450
12	150	150	100	100	150[b]	12	1,000	300	200	0	200	350
13	400	400	600	400	400[b]	13	800	800	0	0	400	800
14	600	600	800	600	600[b]	14	2,400[a]	500	0	0	0	600
18	0	0	0	50	50	18	0	0	0	0	0	50
19	200	200	250	300	300	19	0	150	250	200	200	500
23	200	250	250	250	250	23	0	0	250	0	0	250
24	200	250	250	150	150							150
25	150	200	150	150	200							200
26	200	250	200	150	150							150
27	150	250	150	100	100							100
29	100	150	150	150	150							150
30	100	150	150	150	150							150
44	0	0	0	0	50							50
45	50	100	100	100	100							100
46	100	150	200	250	250	46	0	0	0	0	75	350
47	0	0	0	0	50							
Total	6,425	7,000	6,850	6,000	6,400		16,325	5,800	2,600	2,250	5,025	11,425

[a] Represents the total number of available deer tags; each licenced hunter was offered 2 tags in 1985 (2 deer bag limit).

[b] Split into 2 three day seasons for 1989.

[c] Overlaps with last 3 days of regular either sex season.

Table 58. Mule deer licence quotas for primitive weapons seasons, 1988 and 1989.

WMZ	Archery Season	1988	1989	Muzzleloading Season	1988	1989
1[a]	Either sex	850	850	Either sex	200	200
	Antlerless	100	100	Antlerless	100	100
9	Either sex	150	100	Either sex	50	50
	Antlerless	50	50	Antlerless	0	50
10[b]	Either sex		100	Either sex		100
	Antlerless		50	Antlerless		50
12	Either sex	0	25	Either sex	0	25
Totals	Either sex	1000	1000	Either sex	250	375
	Antlerless	150	200	Antlerless	150	200
		1150	1275		400	575

[a] Represents combined WMZ 1 to 8, 13, 14, 15 (archery only), 18 to 27, 29, 30, 31 (archery only), 44 (new for 1989), 45, 46 and 47 (new for 1989).

[b] 1988 licence quotas combined with WMZ 9.

a) Either-sex rifle quotas will be increased in WMZ 2, 7, 9, 12 and 25 while new seasons in WMZ 44 and 47 will offer 50 licences each. Licence numbers in other WMZ will remain constant with 1988 quotas.

b) Antlerless rifle quotas will be offered in four additional WMZ as compared to 1988. These are WMZ 8, 12, 13 (east of Highway #4) and 46. Quotas will increase in WMZ 2, 5, 6, 9, 10 and 11 while others will remain constant. WMZ 13 has been split in order to take advantage of high antlerless populations in the eastern sector. Traditionally, the majority of hunters have concentrated west of Highway #4 which has resulted in differential harvests within the WMZ.

c) WMZ 9 and 10 will be treated as separate WMZ for the primitive weapon seasons. The result of this strategy will be to distribute archery and muzzleloading hunters more evenly throughout the Great Sandhills while increasing recreational opportunity.

d) Primitive weapon allocations will rise from the 1988 level of 1,150 archery and 400 muzzleloading licences to 1,275 archery and 575 muzzleloading licences in 1989. This is in response to growth in the mule deer populations, the addition of WMZ 12 for primitive weapon hunting, and the separation of WMZ 9 and 10. Proportionally, more muzzleloading either sex licences will be issued to meet demand and to place 1989 Big Game applicant success rates on par with rifle seasons (52% in 1988).

e) The antlerless season in WMZ 46 will be November 16 to 18. Because of the late starting date for the either-sex season (Nov. 13 to 18) and the November 20 to December 2 white-tailed deer season, the two mule deer seasons will overlap the last 3 days of the week. This is not expected to result in conflicts between the two groups as most either-sex hunting is completed within the first 3 days of the season.

D. 1989 MULE DEER SEASONS

Mule Deer	Zones 1, 3 to 8, 11, 18, 19, 23 to 27, 29, 30, 44 and 45, including Brokenshell No. 1 and Elbow Wildlife Management Units; and Cypress Hills (West Block) Provincial Park	Nov. 6 - Nov. 11	one mule deer either sex	• Licence quotas (in brackets) for each zone: 1(400), 2(750), 3(50), 4(150), 5(200), 6(250), 7(200), 8(50), 9(500), 10(700), 11(50), 12(150), 13(400), 14(600), 18(50), 19(300), 23(250), 24(150), 25(200), 26(150), 27(100), 29(150), 30(150), 44(50), 45(100), 46(250), 47(50) • **Note: Primitive weapons only in Saskatchewan Landing Provincial Park.**
	Zones 46 and 47	Nov. 13 - Nov. 18	one mule deer either sex	
	Zones 2, 9, 10 and 12 to 14, including Saskatchewan Landing Provincial Park	Nov. 6 - Nov. 8 or Nov. 9 - Nov. 11	one mule deer either sex	
Antlerless Mule Deer	Zones 1, 2, 4 to 6, 8, 9, 12, 13 (east of Highway No. 4 only) and 19	Nov. 13 - Nov. 18	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1(300), 2(400), 4(150), 5(200), 6(200), 8(100), 9(400), 10(2000), 11(400), 12(200), 13(400), 19(200), 46(75) • "Antlerless Mule Deer" means a doe or a 1989 fawn.
	Zones 10 and 11	Nov. 13 - Nov. 15 or Nov. 16 - Nov. 18	one antlerless mule deer	
	Zone 46	Nov. 16 - Nov. 18	one antlerless mule deer	
Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, 44 to 47 combined, including Brokenshell No. 1 and No. 2, Elbow and Great Bend Wildlife Management Units and Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks	Sept. 4 - Oct. 14	one mule deer either sex	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 18 to 27, 29 to 31, 44 to 47 combined (850), 9(100), 10(100), and 12(25). • Archery licences valid only in the archery season. • **Archery hunting in Provincial Parks is delayed until September 6.**
	Zone 9, 10 and 12	Sept. 18 - Sept. 30	one mule deer, either sex	
Antlerless Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined, including Brokenshell No. 1 and No. 2, Elbow Wildlife Management Unit; and Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks	Sept. 4 - Oct. 14	one antlerless	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined (100), 9(50), and 10(50). • **Archery hunting in Provincial Parks is delayed until September 6.**
	Zones 9 and 10	Sept. 18 - Sept. 30	one antlerless mule deer	
Mule Deer (Muzzle-loading Rifles)	Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 44 to 47 combined, including Elbow and Great Bend Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks; and Zones 9, 10, and 12	Oct. 2 - Oct. 14	one mule deer, either sex	• Licence quotas (in brackets) for each zone: 1 to 8, 13, 14, 18 to 27, 29, 30, 44 to 47 combined (200), 9(50), 10(100), 12(25). • **Note: Special conditions apply to primitive weapons hunting in Elbow Wildlife Management Unit.**

Antlerless Mule Deer (Muzzle-loading Rifles)	Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined, including Elbow Wildlife Management Unit; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks; and Zones 9 and 10	Oct. 2 - Oct. 14	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined (100), 9(50), and 10(50). • **Note: Special conditions apply to primitive weapons hunting in Elbow Wildlife Management Unit.**

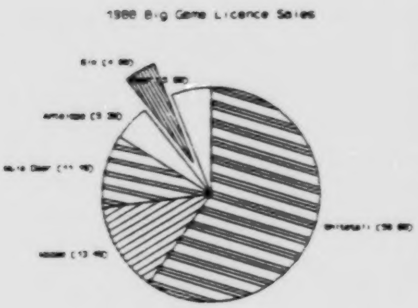
ELK

A. REVIEW OF 1988 HUNTING SEASON

1. Licence Sales

- Total licence sales rose 14.9% from 3,486 in 1986 to 4,006 in 1987 (Table 59). Most noteworthy was the 31.3% increase in regular season licence sales which went from 2,198 licences in 1986 to 2,887 in 1987. As was the case for the regular moose season, early grain harvest conditions in southern Saskatchewan probably contributed to this rise in hunter activity.
- Special draw season licence sales fell 13.1% owing to quota reductions in Fort a la Corne and Cypress Hills.

Table 59. Provincial elk licence sales, 1984 to 1988[a].



	1984	1985	1986	1987	1988	% Change
Regular Bulls Only	3,698	3,240	2,819	2,198	2,887	+31.3%
Special Either sex	784	1,085	1,241	1,288	1,119	-13.1%
Total	4,482	4,322	4,060	3,486	4,006	+14.9%

---

[a] All licence sales represent final sale figures as of June 1 in the following year; however, the data analysis is based on figures available in mid-February.

2. Hunting Activity and Harvest

Northern Commercial Forest

- Although the number of active hunters (excluding WMZ 53) jumped 53% from 1,586 in 1987 to 2,429 in 1988, the regular season harvest of 413 animals was only a 13% increase when compared to the 365 animals harvested in 1987 (Table 60).
- In WMZ 53, adjacent to Prince Albert National Park, the observed 1988 harvest was 11 animals (SPRC field reports). The elk population in the park has been declining in recent years and this fact, combined with mild winter conditions, resulted in few animals being found outside the park. Hunter questionnaire harvest projections for 1988 were believed to be grossly inflated for WMZ 53, therefore, making the statistics probably invalid and unusable in hunting analysis.

Table 60. Estimated hunter success and harvest pressure during the regular elk season, 1988.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
48	177	237	24	13.6	24	24.08:1:0.00	883	36.8	0.3488
49	228	306	34	14.9	34	34.40:1:0.00	1,089	32.0	0.4546
50[a]	15	21	7	46.7	7	6.88:1:0.00	90	12.9	0.0270
53[b,c]	213	286	34	15.9	34	1.00:1:0.00	864	25.4	0.3116
Forest Fringe	633	850	99	15.8	99	4.80:1:0.00	2,926	29.3	0.0113
56	870	1,115	179	20.6	179	178.88:1:0.00	4,299	24.0	0.9094
57	320	409	45	14.1	45	44.72:1:0.00	1,437	31.9	0.4344
58	81	103	3	3.7	3	3.44:1:0.00	402	134.0	0.1790
59	199	255	38	19.1	38	37.84:1:0.00	805	21.1	0.1373
60	188	241	21	11.2	21	20.64:1:0.00	977	46.5	0.2546
61	164	210	38	23.2	38	37.84:1:0.00	860	22.6	0.2828
62	56	72	7	12.5	7	6.88:1:0.00	245	35.0	0.0655
63	81	103	17	20.9	17	17.20:1:0.00	341	20.1	0.0602
64	30	38	0	0.00	0	0.00:1:0.00	124	0.00	0.0349
66	3	3	0	0.00	0	0.00:1:0.00	12	0.00	0.0010
69	19	24	0	0.00	0	0.00:1:0.00	96	0.00	0.0123
Forest	2,009	2,573	348	17.3	348	347.44:1:0.00	9,598	27.7	0.0581
Provincial Total	2,642	3,423	447	16.9	447	25.29:1:0.00	12,524	28.0	0.0654
Total Excluding WMZ 53	2,429	3,137	413	17.0	413	100.00:1:0.00	11,660	28.2	0.0672

[a] That portion of WMZ 50 north of Highway No. 55, only.
[b] Either-sex season.
[c] Statistics questionable.

- Total days of recreation (excluding WMZ 53) increased from 6,991 in 1987 to 11,660 in 1988. This increase in hunter days could be attributed to dry fall weather conditions which expedited farming operations so that harvest was completed throughout much of Saskatchewan. Early harvest made it possible for farmers and those involved in agriculture to go regular season hunting.

Special Seasons

Moose Mountain Provincial Park (WMZ 33 - Licence Quota = 100)

- A telephone survey of elk hunters in Moose Mountain Park indicated that 57 elk were harvested in 1988 with a harvest structure of 0.96 bulls:cow:0.32 calves (Table 61). Unregulated kill during the past year has been similar to other years, that is, about 40 animals.

Table 61. Estimated hunter success and harvest pressure during the special either-sex seasons, 1988.

WMZ	Quota	Active Hunters	Harvest	% Success	Harvest Structure Bull:Cow:Calf	Hunter Days	Hunter Days/Kill
6	50 (50)[a]	50 (6)	10	20.0 (12.0)	4.00:1:1.00 (4.00:1:1.00)	234 —	23.4 —
7	100	100 (103)	44 (37)	44.0 (35.9)	1.78:1:0.00 (1.50:1:0.14)	507 —	11.5 —
33	100	100 (96)	59 (57)	59.0 (59.4)	1.22:1:0.28 (0.96:1:0.32)	370 (314)	6.3 (5.5)
50[b]	100	100	50	50.0	3.00:1:0.50	446	8.9
48[c]	600	593	132	22.3	0.89:1:0.39	2689	20.4
54	51	51	15	29.4	15.30:1:0.00	202	13.5
59	56	56	24	42.9	0.43:1:0.43	226	9.4
63	54	54	7	12.9	1.00:1:3.00[d]	216	30.9
Total	1111	1104 (1103)	341 (328)	30.9 (29.7)	1.38:1:0.38 (1.26:1:0.41)	4890 (4834)	14.3 (14.7)

[a] Results of telephone surveys in parenthesis.
[b] Includes portion of WMZ 43.
[c] Includes WMZ 48, 49, 56 and 57 combined.
[d] Ratio erroneous - unknown age classes classified as calves.

Fort a la Corne (WMZ 50 and portion WMZ 43 - Licence Quota = 100)

- The licence quota was reduced from 275 to 100 in 1988 as a result of concern over a decline in the elk population in Fort a la Corne. A portion of WMZ 43 was open for elk in addition to the traditional area of WMZ 50.
- The estimated harvest was 50 animals according to the hunter questionnaire projections. However, field observations suggest the harvest was likely 35 animals which was more consistent with historic success rates. The harvest structure was estimated at 3.00 bulls:cow:0.50 calves (Table 61).

Porcupine Forest (WMZ 48, 49, 56, 57 - Licence Quota = 600)

- The elk harvest was 132 compared to a harvest of 193 in 1987 (Table 61). Mild weather created very noisy conditions in the forest which likely contributed to the slight decline in harvest.
- Hunter success was 22% which is comparable to the long-term average of about 20%. Hunter days per animal increased to 20 days per animal from 12 days per animal in 1987.

Cypress Hills East & Centre Blocks (WMZ 6 and east portion WMZ 7 - Licence Quota = 50)

- Hunter questionnaire data indicates that 10 elk were harvested in 1988 compared to 21 elk in 1987 (Table 61). A telephone survey of at least one member of a hunting party indicated 6 elk were killed in 1988. Harvest structure from the hunter questionnaire survey was 4.00 bulls:cow:1.00 calves.

- As a result of hunters experiencing difficulty obtaining access to leased and private lands in 1987, the quota was reduced from 100 to 50 licences. However, even with the quota reduction, the 1988 harvest was low. Mild weather made it difficult to travel through the bush quietly which in turn made hunting difficult. These conditions no doubt adversely affected the elk harvest.

Cypress Hills West Block (West portion WMZ 7 - Licence Quota = 100)

- The hunter questionnaire survey indicated that 44 elk were harvested in 1988 as compared to 59 in 1987 (Table 61). Hunter success was estimated at 44% compared to 33% in 1987 with a harvest structure of 1.78 bulls:cow:0.00 calves. A telephone survey of at least one member of a hunting party concluded that 37 elk were taken in 1988 with a harvest structure of 1.50 bulls:cow:0.14 calves.
- Alberta hunters harvested 25 elk in 1988 compared to 66 in 1987 and Indian hunters took 61 elk in 1988 compared to 49 in 1987.

Thickwood Hills (WMZ 54 - Licence Quota = 50)

- Fifteen (15) elk were harvested in 1988 as compared to 19 in 1986 (there was no season in 1987). Success was estimated at 29% with a harvest structure of 15.30 bulls:cow:0.00 calves.

Pasquia Hills (Zone 59 - Licence Quota = 50)

- Hunter questionnaire data suggests that 24 elk were harvested in 1988 compared to an estimate of 10 in 1987. Success was estimated at 43% with a harvest structure of 0.43 bulls:cow:0.43 calves.

WMZ 63 (Licence Quota = 50)

- 1988 was the first year of this season. Based on hunter questionnaire information 7 elk were harvested for an overall hunter success of 13%. Projected harvest structure from the hunter questionnaire was 1.00 bulls:cow:3.00 calves. This structure was biased toward calves due to missing adult age classes. The computer program erroneously classifies unknown age classes as calves. SPRC field observations indicated the harvest structure was more likely 0.5 bulls:cow:0.5 calves.

3. Harvest Structure

- **The provincial harvest structure, as estimated through the 1988 Big Game Hunter Questionnaire Survey, was 2.97 bulls:cow:0.35 calves.**
- **In the regular season, bulls only season harvest structure results equated to 25.29 bulls:cow:0.00 calves (Table 60).**
- **Despite the lower numbers of bull proportionate to cows in Saskatchewan elk herds, hunters still select for bulls when hunting in the special season. This was reflected in the 1988 harvest structure where 1.38 bulls:cow:0.38 calves were taken (Table 61).**
- **Results from telephone surveys in WMZ 6, 7 and 33 revealed that total harvest (328) was less, and fewer bulls and more calves were harvested (1.26 bulls:cow:0.41 calves) than what was projected by the Big Game Hunter Questionnaire Survey (Table 61).**

Biological Collection Program

- Information on the sex and age classes of elk harvested during the special either-sex and regular bulls only seasons were obtained from 298 tooth samples. The majority of samples came from the northeast Forest ecozone but important contributions also came from the "island" habitats such as Cypress Hills and Moose Mountain.
- A comparison of check station information from 1984 to 1988, inclusive disclosed that the proportion of bulls to cows to calves in the provincial harvest has been similar throughout this time period (Fig. 13). The exception was the harvest in 1986 where a high proportion of cows and very low number of calves were checked (Appendix 5). When compared against the mean values for these five years, 1986 values were statistically different ($X^2=33.88$; $P<0.01$).
- The overall check station returns for the Forest ecozone consisted of 68% bulls, 24% cows and 8% calves for a harvest structure of 2.86 bulls:cow:0.32 calves (Fig. 14). In 1987 bulls made up 61%, cows 25% and calves 24% for a harvest composition of 2.38 bulls:cow:0.54 calves. Analysis by age class revealed that yearling animals comprised 37% of the bulls and 27% of the cows sampled at 1988 check stations. Young bulls (1.5 to 3.5 years) accounted for 83% of the adult male harvest.
- A review of bulls harvested in the regular season from 1984 to 1988, inclusive, indicated that the average age of bulls coming into check stations has declined over the past five years (Appendix 6). Based upon analysis of variance ($F=2.63$, $P<0.04$), there was a clear change in mean ages and two separate clusters appeared ($P<0.20$); 1984, 1985 and 1986 as the first group and 1987 and 1988 as the second (Table 62). This change in age structure was also true when the proportions between

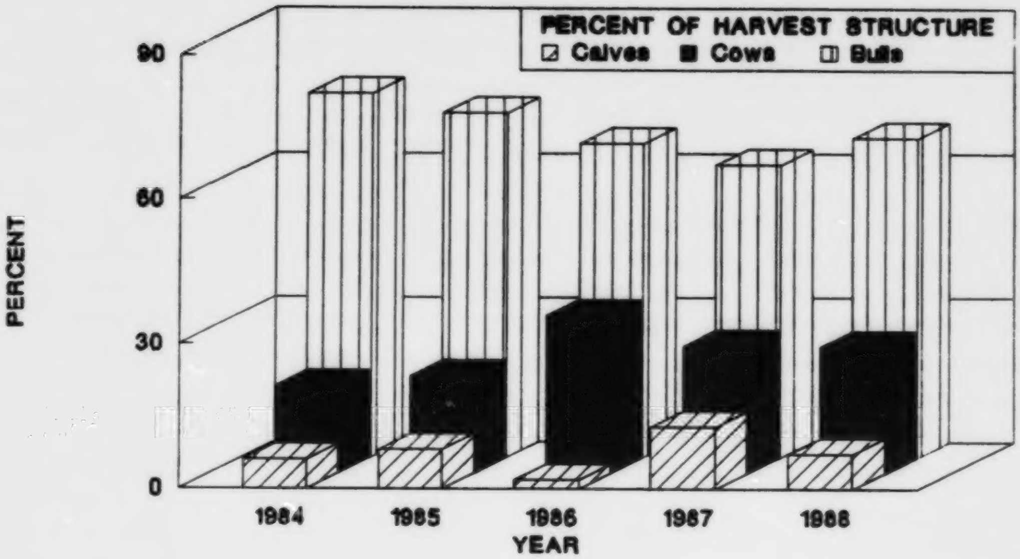


Fig. 13. Provincial harvest structure for elk, 1984 to 1988.

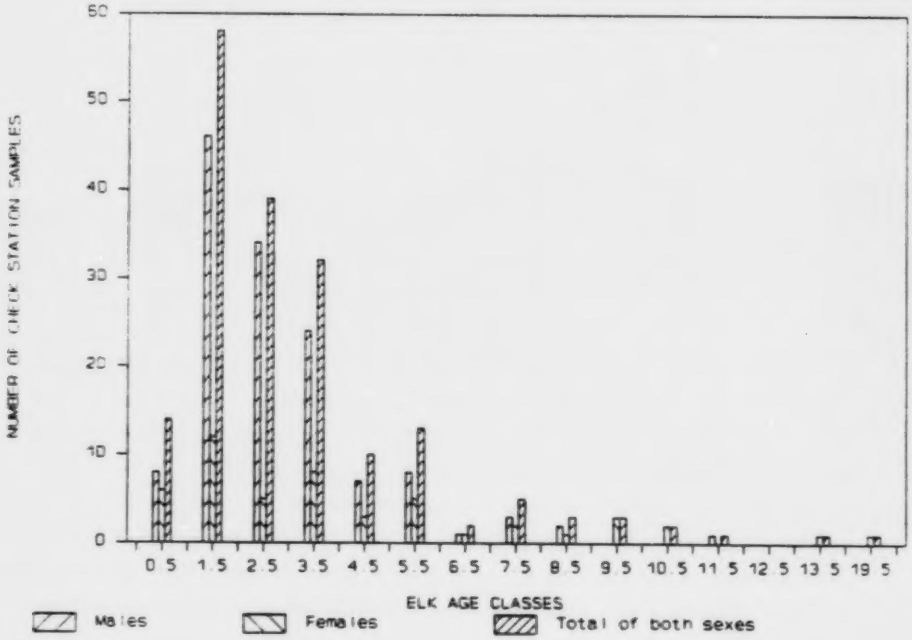


Fig. 14. Sex and age composition of the 1988 Forest ecozone harvest based on tooth samples, 1988.

Table 62. Analysis of bull elk age classes from check stations. September regular seasons, 1984 to 1988.

Analysis of Variance Table

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio	Probability
Among Groups	4	49.09	12.27	2.63	0.034
Within Groups	387	1808.33	4.67		
Adjustment Total	391	1857.42			

Table of Means and Errors

Year[a]	Mean	Std. Error	No. Observations
1984	3.57	0.24	83
1985	3.87	0.26	67
1986	3.61	0.24	83
1987	2.93	0.23	92
1988	3.09	0.21	104

90% Confidence Interval Values

Year[b]	Lower Limit	Mean	Upper Limit
1984	3.04	3.57	4.09
1985[c]	3.44	3.87	4.31
1986	3.22	3.61	3.99
1987	2.56	2.93	3.31
1988	2.74	3.09	3.44

Plot of Treatment Confidence Intervals

```
1984                                                - - - - - - - - - O - - - - - - - - -

1985                                                               - - - - - - - - O - - - - - - - -

1986                                                      - - - - - - - O - - - - - - -

1987                              - - - - - - O - - - - - -

1988                                     - - - - - - O - - - - - -
```

---

[a] Years arranged in ascending order of mean values.

[b] 1984, 1985 and 1986 values significantly higher ($P<0.20$) than 1987 and 1988).

[c] 1985 value significantly higher ($P<0.01$ than 1987 and 1988).

ages of immature bulls (1.5 and 2.5 years old) to subordinate bulls (3.5 to 5.5 years old) to dominant bulls (6.5 years and older) were compared ($X^2=19.89$; $P<0.08$). The greatest statistical variation between individual years occurred within 1985 and 1987. In 1985 the mean age of bulls (Table 62) and the proportion of mature bulls to immature bulls (Fig. 15) was the highest recorded for these five years. Contrary to 1985 check station results, 1987 registered the lowest mean age and hunters harvested the greatest proportion of immature bulls than any other year.

- The reasons for these clusters is unknown. The first three years had later September opening dates (1984 - September 17, 1985 - September 16, 1986 - September 15) than the last two years (1987 - September 14; 1988 - September 12) which may indicate that the earlier the season moves into the rut, immature bulls, and to a lesser extent, subordinate bulls are more vulnerable to harvest. However, a Chi squared test of cluster means revealed little statistical evidence in which to base such a conclusion on ($X^2=4.35$; $P<0.25$).
- Throughout the first three years, an average of 2,900 hunters per year were active hunting elk in the regular seasons. Their mean success rate was 16.5%. In contrast, the years 1987 and 1988 produced a 18.7% success rate from 2,200 hunters per year. The above information may signify that there was a point of diminishing returns in regard to hunter success once a certain number of hunter in the field was reached. However, there was not strong statistical evidence to support this hypothesis ($X^2=3.39$; $P<0.20$).

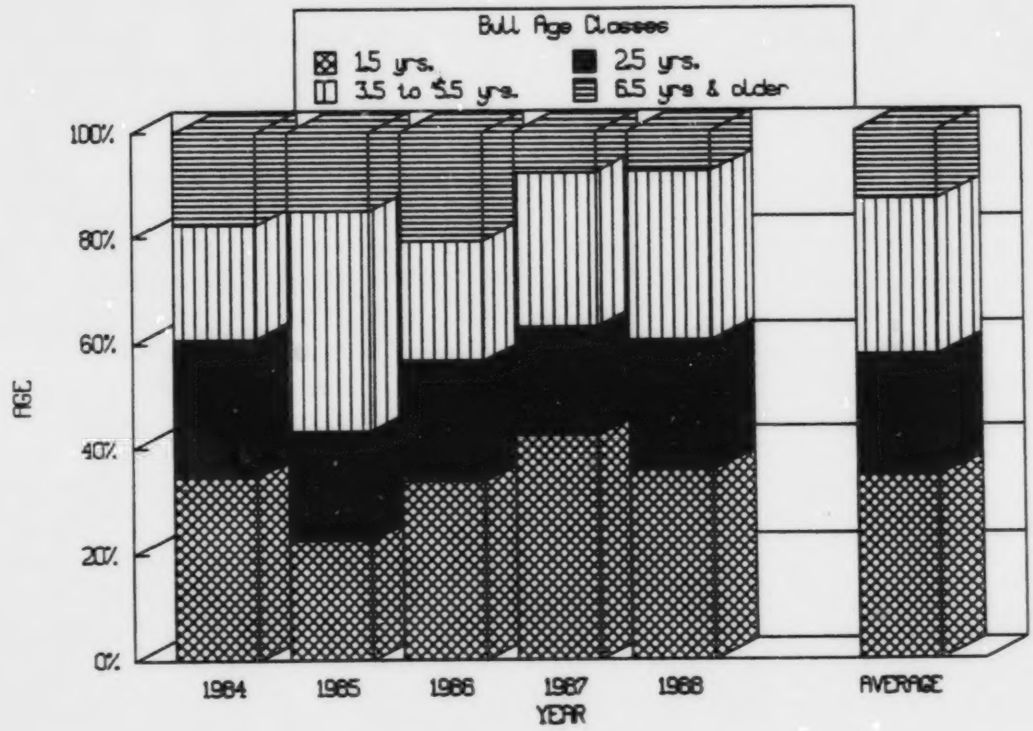


Fig. 15. Regular season bull harvest, 1984 to 1988.

- One of the most probable explanations for the declining mean age may be found in that elk populations are flourishing. As populations grow the probability that a young bull will be harvested is enhanced. If check station information can be considered a true representation of the total immature (1.5 and 2.5 year olds) and subordinate (3.5 to 5.5 year olds, inclusive) bulls has increased over the past five years and is indicative of an expanding population.
- Comparison of antler classes was an important tool in analyzing the proportion of immature to mature bulls taken in the harvest (Appendices 4 and 7). Hunters may be reluctant to give up the incisors of large antlered bulls for fear of damage to the cape of what they feel is a trophy animal. In many cases antler configurations is all that is available with regard to the relative age of a particular animal. As was the case with the aforementioned age comparisons, more antler class A and B bulls (mean ages: A=1.5 years, B=1.6 years; Appendix 8) were being harvested as time pasted. Statistically, 1987 again stands out as the most important year for the harvest of immature bulls proportionate to mature bulls (Fig. 16). Conversely, both 1984 and 1985 were prominent years for the harvest of subordinate and dominant antler classed bulls. Antler class proportions in the 1987 harvest results differed significantly from that of both 1984 and 1985 ($X^2=10.07$, $X^2=8.39$; $P<0.05$).

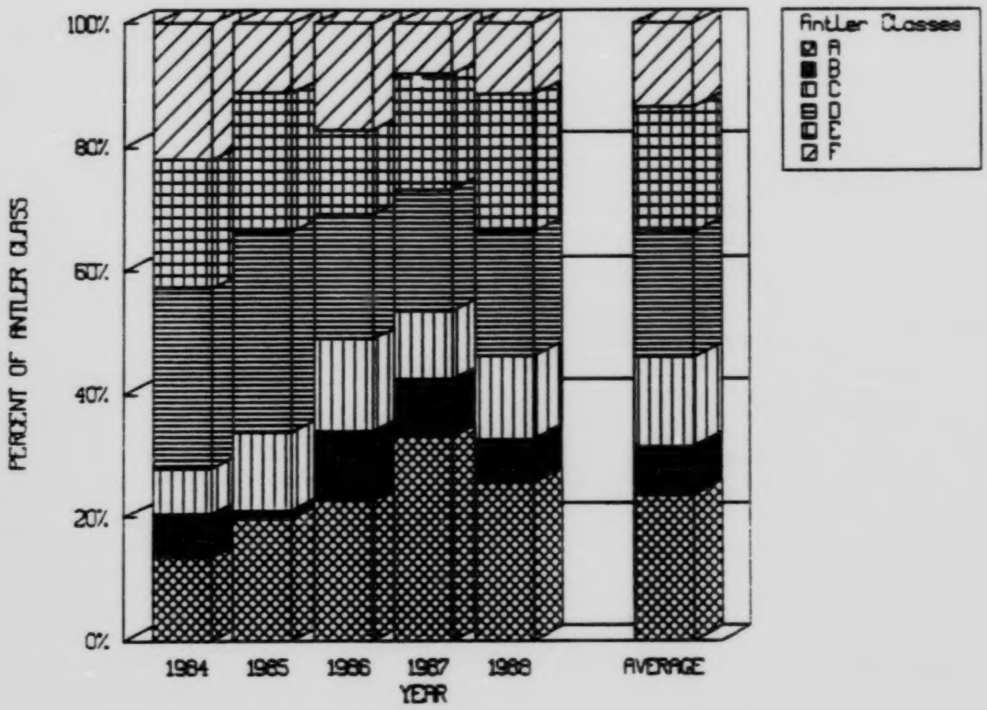


Fig. 16. Regular season bull harvest, 1984 to 1988. Antler configurations as reported at check stations.

B. POPULATION STATUS

1. Northern Commercial Forest

- Density and population structure surveys were not conducted for elk in the Commercial Forest during the 1988-89 winter.
- In the northeast (WMZ 48, 49, 56, 57 and 59), field reports suggest that elk populations are slowly increasing with a sufficient number of mature bulls available for breeding purposes.
- Elk populations are believed to be increasing in WMZ 60 and 61 (Cumberland Delta). There is still a considerable amount of habitat in these two zones which could be occupied by elk and the current management strategy, designed to restrict harvest to bulls and promote herd growth, should be continued for the immediate future.
- Elk populations in WMZ 66 and 69 are stable and the current low harvest is not significantly affecting population growth.
- In WMZ 62 and 64, field reports suggest normal or slightly higher elk populations but levels are not large enough to warrant a change in season structure.
- Elk depredation has been an increasing problem along the interface of the boundaries of WMZ 68, 67 and 47. This depredation is believed to be the result of increasing elk populations in this area.

- **Transplants**

  - Elk from Elk Island National Park were released at two locations in Saskatchewan during the winter of 1988-89 to supplement wild populations. Forty-one (41) elk were released in WMZ 63 and 69 animals were released in WMZ 67. The releases were co-sponsored by the Rocky Mountain Elk Foundation, the Foundation for North American Big Game and Saskatchewan Parks and Renewable Resources.

2. Southern Wildlife Management Zones

Moose Mountain Park (WMZ 33)

- An aerial survey flown in February, 1989 resulted in a population estimate of 401 animals. This estimate was probably low due to mild winter conditions which enabled elk to disperse throughout the area.

Cypress Hills (WMZ 6 & 7)

- The East and Centre Blocks' population is believed to be stable at about 250 elk. A fixed-wing aerial survey flown in late winter counted 197 animals, 41 in the East Block and 156 in the Centre Block. However, survey staff found elk difficult to observe and to get an accurate count as the animals were in heavy timber. They felt a miss factor of approximately 30% may have occurred.

- A total of 832 elk were enumerated in the West Block during the 1988-89 survey. This represents an increase from the 1987-88 population estimate of 616 animals. In retrospect, it appears that animals were missed in last year's survey and, coupled with low harvests, resulted in this dramatic increase in elk numbers.

Thickwood Hills (WMZ 54)

- No aerial survey was flown in 1988-89. It is believed the elk population in the Thickwood Hills is stable at approximately 250 animals.

Fort a la Corne (WMZ 50)

- No aerial survey was flown in 1988-89. However, the elk population is believed to be stable at about 300 animals.

C. 1989 MANAGEMENT OBJECTIVES

1. Elk hunting early in the rut impacts the harvest of mature bulls which are critical to the social integrity and reproduction in elk populations. To preserve this integrity and ensure harvest of non-breeding bulls, the regular elk season opening will September 18. The majority of cows will have been bred prior to these dates, thus ensuring good reproductive potential for 1990.

2. A regular elk season (bulls only) will be introduced for 1989 in WMZ 68 and that portion of WMZ 47 north of Highway #3 to allow hunters the opportunity to take advantage of growing elk populations in this area.

3. Increasing elk populations in the Porcupine Forest (WMZ 48, 49, 56 and 57) have made it possible to introduce a quota of 50 special season licences in WMZ 58. If populations in this area continue to expand it will necessitate setting quotas on a WMZ basis rather than combining the quota as is presently done. This possible change will be reviewed in 1990.

4. The management strategy in WMZ 60-62, 64, 66, 67, and 69 has been to allow the population to continue to expand using a selective harvest hunting regime. The bulls only season will continue in these zones in 1989.

5. Southern Areas

Moose Mountain Provincial Park (WMZ 33)

- Although the 1988 population estimate suggests a decline from 1986 the quota of 100 licences will be maintained for 1989.

Fort a la Corne (WMZ 50)

- No survey was carried out in 1988-89 but the population is judged to be stable or growing slowly and, consequently, the quota of 100 licences will be maintained for 1989.

Cypress Hills West Block (WMZ 7)

- The 1988-89 population estimate is above the population objective, hence the quota will be increased from 100 to 200 licences.

Cypress Hills Centre and East Blocks (WMZ 6 & 7)

- In an effort to increase harvest the season will be lengthened to two weeks. The quota will remain at 50 licences owing to hunter access problems.

Thickwood Hills (WMZ 54)

- The quota will remain at 50 licences in 1989 and the season will be lengthened by one week to afford hunters more opportunity to harvest an elk.

D. 1989 ELK SEASONS

Special Elk	Zone 6 and that portion of Zone 7 east of Highway No. 271 and Grid Road No. 615	Nov. 6 - Nov. 18	one elk, either sex	• Licence quotas (in brackets) for each zone: 6 and the east portion of 7 combined (50), the west portion of 7(200), 33(100), 43 and 50 combined (100), 48, 49, 56 and 57 combined (600), 54(50), 58(50), 59(50), 63(50). • **Note: Some portions of the Meeting and Royal Lake PFRA pastures in Zone 54 will be closed to elk hunting. Watch for "No Hunting" signs.**
	That portion of Zone 7 west of Highway No. 271 and Grid Road No. 615, including Cypress Hills (West Block) Provincial Park	Oct. 23 - Oct. 28 or Oct. 30 - Nov. 4	one elk, either sex	
	Zone 33, including Moose Mountain Provincial Park	Oct. 23 - Oct. 28	one elk, either sex	
	That portion of Zone 43 west of Highway No. 35 and north of Highway No. 335 and that portion of Zone 50 south of Highway No. 55, including Fort a la Corne Wildlife Management Unit	Aug. 28 - Sept. 16	one elk, either sex	

	Zones 48, 49, 56 and 57 combined including Greenwater Lake Provincial Park; Zones 58, 59; and that portion of Zone 63 south of the Torch River (Nipawin Provincial Park closed)	Oct. 16 - Oct. 21	one elk, either sex	
	That portion of Zone 54 south of Highway No. 3	Nov. 6 - Nov. 18	one elk, either sex	
Regular Elk (Sask. Residents Only)	Zones 48, 49, 50 (north of Highway 55), 56 to 64, 66 and 69, including Leaf Lake Wildlife Management Unit and the northeast portion of Meadow Lake Provincial Park north of the 17th base line	Sept. 18 - Sept. 30	one antlered elk	• "Antlered Elk" means any elk having an antler or antlers at least 15 centimetres in length as measured from the outside of the skull to the tip. • Successful applicants for a special elk licence are not eligible to purchase a regular elk licence. • **Note: Watch for signs in Meadow Lake Provincial Park.** • **Note: Hunters will be restricted to designated trails within the Cookson Wildlife Management Unit.**
	Zone 53, including Cookson Wildlife Management Unit	Nov. 20 - Dec. 9	one elk either sex	
	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26 and Zone 68, combined including Bronson Forest Recreation Site	Sept. 18 - Sept. 30	one antlered elk	

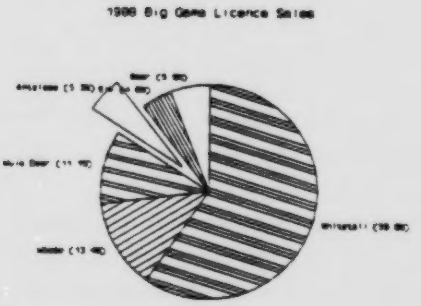
PRONGHORN ANTELOPE

A. REVIEW OF 1988 HUNTING SEASON

1. Licence Sales

- A total of 4,550 rifle and 300 archery licences were available to sport hunters in 1988. Licences were sold to 4,339 rifle and 302 archery hunters (Table 63).
- The increase in available licences resulted in a 25% and 19% increase in rifle and archery sales, respectively. However, not all of the available licences were sold through the 1988 Big Game Draw.

Table 63. Provincial pronghorn antelope licence sales, 1984 to 1988[a].



	1984	1985	1986	1987	1988	% Change
Regular	2,717	2,921	2,983	3,461	4,339	+25.4%
Archery	298	260	296	252	301	+19.4%
Total	3,015	3,181	3,279	3,713	4,640	+24.9%

[a] All licence sales represent final sale figures as of June 1 in the following year, however, the data analysis is based on figures available in mid-February.

2. Hunting Activity and Harvest

- The 1988 antelope harvest (rifle and archery, combined) was estimated at 3,705 animals compared to 2,948 animals taken in 1987 (Table 64). This represented a 26% increase.
- Rifle hunter success was 85% in 1988, similar to 1987.
- Success rates for rifle hunters were generally high in all WMZ with WMZ 1 being the highest at 93% and the lowest being WMZ 7 at 66% (Appendix 9).
- Rifle hunters spent 8,087 days in the field in 1988 compared to 6,176 in 1987, an increase of 31. This rise in recreation days was partially attributed to the 25% increase in licence allocations in 1988. As was the case in the previous year the extended season, which ran through the mule deer season, also contributed to the rise in hunter recreation days in 1988.
- There was a small increase in hunter days per animal for rifle hunters, from 2.15 days in 1987 to 2.19 days in 1988.

Table 64. Provincial antelope harvest, hunting success and pressure, 1988.

	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km^2 In Zone
Archery									
Grassland	210	235	38	18.1	38	19.00:1:0.00	945	24.9	0.0145
Farmland	56	65	15	26.8	15	7.00:1:0.00	208	13.9	0.0022
Total	266	300	53	19.9	53	12.25:1:0.00	1,153	21.8	0.0072
Rifle									
Grassland	3,980	3,980	3,368	84.6	3,368	2.63:1:0.16	7,500	2.2	0.1157
Farmland	329	329	284	86.3	284	2.52:1:0.04	587	2.1	0.0064
Total	4,309	4,309	3,652	84.8	3,652	2.62:1:0.15	8,087	2.2	0.0517
Provincial Total	4,575	4,609	3,705	80.9	3,705	2.66:1:0.15	9,240	2.5	0.0292

3. Harvest Structure

- The harvest structure for the rifle season was 2.63 males:doe:0.16 kids in the Grassland ecozone and 2.52 males:doe:0.15 kids in the Farmlands (Table 64).
- Provincially, the harvest structure was 2.62:doe:0.15 kids.
- Hunters in WMZ 4 had the highest buck to doe harvest proportionally to all other WMZ, while WMZ 10 had the lowest buck to doe harvest structure (Appendix 9).

4. Archery

- An estimated 266 active archery hunters harvested 53 antelope with a 20% success rate compared to a 30% success rate in 1987 (Table 64; Appendix 10).
- The 1988 provincial harvest structure for archery was 12.25 bucks:doe:0.00 kids, the proportion of bucks being twice as large as compared to 1987.
- Archery hunters required an average of 21.8 days to harvest an antelope compared to 15.5 days in 1987.

B. POPULATION STATUS

1. Density Estimates

- The 1989 antelope survey was flown on June 26 to 29 covering the traditional blocks in WMZ 2, 3 and 9.
- Two additional blocks were flown this year, including coverage of Farmland areas in WMZ 8 and 10.

- Based on a comparable survey in 1988, density estimates represent a 14.3% increase in 1989 (Table 65).
- Survey block 3a had the greatest increase relative to last year, increasing 42.9%. On the other hand, block 2a declined by 10.9%.
- Survey blocks 8a (75% cultivated) and 10a (85% cultivated), areas with significant proportions of cultivated farmland, revealed densities calculations of 0.22/km^2 and 0.29/km^2, respectively.

Table 65. Population densities and sex/age composition for antelope in Saskatchewan, 1989.

	Density							Population Structure											
							% Change	Buck:doe				Kid:doe				Kid:adult doe[b]			
Survey[a] Block	Yearling Males	Adult Males	Does	Kids	Total	Population Density (km^2)	Over 1988	89	88	87	86	89	88	87	86	89	88	87	86
2a 645 km^2	78	111	347	201	737	1.14	-10.99	54	55	52	53	58	78	110	83	75	106	136	103
2b 676 km^2	73	109	258	169	609	0.90	+ 7.14	71	48	73	50	66	72	95	96	91	92	136	118
3a 1282 km^2	114	229	653	411	1,407	1.10	+42.9	53	51	38	63	63	52	95	88	76	62	101	119
9a 420 km^2	25	68	157	127	377	0.90	+ 2.27	59	56	100	72	81	65	83	78	96	78	135	119
Total 3023 km^2	290	517	1,415	908	3,130	1.04	+14.3	57	52	64	59	64	65	96	87	81	82	126	111
8a 246 km^2	5	7	23	18	53	0.22	–	50	–	–	–	78	–	–	–	100	–	–	–
10a 207 km^2	3	8	31	17	59	0.29	–	35	–	–	–	55	–	–	–	61	–	–	–
Total 3476 km^2	298	532	1,469	943	3,242	0.93	–	57	–	–	–	64	–	–	–	81	–	–	–

[a] These survey blocks represent areas that were traditionally censused during the transect aerial survey.

[b] Adult does represent mature animals 2 years and older. This category is defined using the procedure of identifying yearling males and assuming an equal number of yearling females in the total doe segment of the population. This is subtracted from the total number of does observed to derive an estimate of does potentially producing kids, that is does 2 years and older.

2. Population Structure

- On survey blocks 2a, 2b, 3a, 8a, 9a and 10a the sex and age composition was gathered as well as the density information (Table 65).
- Buck to doe ratios grew somewhat from 0.52 bucks:doe in 1988 to 0.57:doe in 1989. Actual numbers of bucks observed on the surveys increased by 5%. Both the number of observed yearling bucks and mature bucks rose in 1989 relative to the 1988 survey.
- Antelope productivity in terms of kids per doe fell slightly from the 1988 level of 0.65 kids:doe to 0.64 kids:doe in 1989, although the total number of kids observed actually increased on the comparable survey blocks (Tables 65, 66 and 67).

Table 66. Antelope kid to doe ratios estimated by July aerial surveys, 1982 to 1989.

WMZ	1982	1983	1984	1985	1986	1987	1988	1989
1	0.76	0.50	n/a	0.25	—	—	—	—
2	0.46	0.86	0.52	0.58	0.83	1.06	0.76	0.61
3, 7, 8	0.51	0.59	0.51	0.61	0.88[a]	0.95[a]	0.53[a]	0.63[c]
6	0.12	2.10	0.44	0.61	—	—	—	—
9, 10	0.50	0.88	0.71	0.70	0.78[b]	0.83[b]	0.65[b]	0.77
11, 12, 13, 14	0.76	1.22	0.60	0.97	—	—	—	—
19, 22, 24, 29	0.77	—	—	—	—	—	—	—
26	0.48	0.68	0.63	0.64	—	—	—	—
Average	0.51	0.85	0.56	0.63	0.84	0.96	0.65	0.64

[a] Represents the kid to doe ratio from WMZ 3 only.
[b] Represents the kid to doe ratio from WMZ 9 only.
[c] Represents the kid to doe ratio from WMZ 3 and 8 only.

Provincial kid to doe ratios from July aerial surveys, 1965-1980:

1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
0.54:1	0.85:1	0.82:1	0.74:1	0.87:1	0.77:1	0.70:1	0.60:1	0.68:1	0.56:1	0.64:1	0.81:1	0.65:1	0.74:1	0.90:1	0.68:1	0.69:1

Table 67. Antelope kid to mature doe (2+ yrs) ratios estimated by July aerial surveys, 1983 to 1989[a].

	Yearling Males	Adult Males	Yearling[b] Females	Adult Females[c]	Kids	Kids:Mature Does
1983	90	165	90	467	492	1.05
1984	211	190	211	502	465	0.93
1985	95	164	95	476	394	0.83
1986	53	78	53	221	186	1.11
1987	169	287	169	543	686	1.26
1988	253	407	253	1,009	826	0.82
1989	298	532	298	1,469	943	0.81

[a] Includes data from only those survey blocks where yearling males were segregated by observers.
[b] Yearling females are distinguished using the procedure of identifying yearling males and assuming the same number of yearling females in the female segment of the observed population.
[c] Includes yearling females.

- Reproductive rates, as expressed by the ratio of kids per does, remain below long-term average levels. The 1989 decline in kid to doe ratios may be a residual effect of the severe drought in 1988 through poor physiological condition of does and the longer term impact of deteriorated forage quality. An opposing view is that the survival of the pervious year's kid crop was very high and, thus, these young non-producing animals constitute a much higher proportion of the adult doe component of the population. This too would result in lower kid to doe ratios, however, kid per mature doe ratios presented in Tables 65 and 67 appear to contradict this last explanation of low kid to doe ratios.

- Despite the apparently low reproductive rate, density estimates indicate that antelope populations are stable or slowly expanding throughout the provincial range.

C. MANAGEMENT OBJECTIVES

- The antelope population in Saskatchewan has been increasing over the last few years as a result of relatively mild winters and years of good to excellent reproduction.
- Landowners throughout the antelope range (Grassland and Farmland ecozones) have expressed concern about depredation on field crops. This problem is one that the department will need to take into consideration in future management strategies. The high population densities in some zones may be contributing to depredation problems.
- It appears that antelope are attracted to agricultural produce during the fall, winter and spring periods where crops are planted in close proximity to wintering areas. Mild winters with very little snow cover make this new growth attractive and available to large herds of antelope.
- The species population objectives set by the department for the mid-1980's are presently being met but hunting demand still exceeds the supply of animals, although some allocated licences were not taken up by hunters in 1987 and 1988, respectively.

D. 1989 ANTELOPE SEASONS

- An increase of 450 either sex licences is tentatively proposed for the 1989 rifle season. The total quota of 5,000 licences available in WMZ 1 to 14, 19 and 23 to 26 represents a 13% increase from the 1988 allocation level (Table 68).
- The 1989 season is again proposed to extend into the regular and antlerless mule deer seasons to accommodate the antelope hunters who also hold a mule deer licence and wish to hunt both species in a single trip.
- Archery licence quotas will be increased from 300 licences to 400 licences to meet increased demand for this species.
- An experimental three day muzzleloading rifle antelope season will be offered in WMZ 7 and 14. These WMZ had a surplus of rifle licences in 1988 and, combined with growing populations, recreational opportunity was being forfeited. Hunters in either of these two WMZ will be drawn from one general application pool, that is, rifle and muzzleloading hunters will have the same status. During the first three days of the season hunters will be allowed to hunt with a muzzleloading rifle only, after which a rifle or any primitive weapon is permitted.

Table 68. Antelope licence quotas for years 1987 through 1989 and season structure for 1989.

WMZ	Regular 1989	Regular 1988	Regular 1987
1	100	100	50
2 & 5 combined	1,100	1,100	850 (5)150
3	900	750	650
4	75	75	50
6	150	100	75
7	325	325	250
8 & 11 combined	350	275	200
9	675	600	500
10	400	300	175
12 & 13 combined	300	300	225
14	300	300	225
19 & 23 combined	100	100	75
24	75	75	50
25	75	75	50
26	75	75	50
Total	5,000	4,550	3,625
Archery	400	300	300
Grand Total	5,400	4,850	3,925

Antelope	Zones 1, 2, 4 to 6, 8 to 13, 19 and 23 to 26	Oct. 26 - Nov. 18	one antelope, either sex	• Antelope licence quotas will be set after June aerial surveys.
	Zones 7 and 14 including Saskatchewan Landing Provincial Park	Oct. 23 - Nov. 18	one antelope, either sex	• **Note: Oct. 23-25, inclusive, a muzzleloading rifle only may be used in Zone 7 and 14.**
	Zone 3	Oct. 30 - Nov. 18	one antelope, either sex	• Primitive weapons only in Saskatchewan Landing Provincial Park. • During the muzzleloading rifle season only, hunters may wear camouflage clothing.
Antelope (Archery)	Zones 1 to 15, 18, 19 and 23 to 26, including Saskatchewan Landing Provincial Park	Sept. 4 - Oct. 14	one antelope either sex	• Antelope archery licences are valid in any open zone during the archery season only. • **Note: The opening date in Saskatchewan Landing Provincial Park is delayed until September 6.**

BLACK BEAR

A. REVIEW OF 1988 HUNTING SEASON

1. Licence Sales

- First licence sales (all residency types combined) for the 1988 spring and fall bear seasons declined slightly (4%) from 4,800 in 1987 to 4,610 in 1988 (Tables 69 and 70).
- There were 535 second bear licences issued in 1988, a negligible increase (1%) from 528 licences sold in 1987. Approximately 10% of first licence holders purchased a second licence from 1984 to 1988 (11% in 1988).
- No free permits were issued for WMZ 58-61 in 1988.
- Total licence sales remain at approximately the 5,000 mark (5,145 in 1988) as they have since 1984.
- Sales have continued to shift toward a higher proportion of non-residents, standing at 29% in 1988 (Table 69).

Table 69. Provincial bear licence sales by hunter residency, 1984 to 1988.

	1984	1985	1986	1987	1988	% Change
Sask. Resident 1st Bear	4,370[a]	3,601	4,303	3,817	3,353	-12.2%
Sask. Resident 2nd Bear	529[b]	319	460	393	284	-27.7%
Total		3,920	4,763	4,210	3,637	-13.6%
Canadian Resident 1st Bear		67	95	92	957	+3.3%
Canadian Resident 2nd Bear		3	6	12	7	-41.7%
Total		70	101	104	102	-1.9%
Non-resident 1st Bear		380	634	891	1,162	+30.4%
Non-resident		22	115	123	244	+98.4%
Total		402	749	1,014	1,406	+38.7%
%Non-Saskatchewan Resident		10%	15%	21%	29%	
Total Sales	4,899	4,392	5,614	5,328	5,145	-3.4%

[a,b] Sales include all hunters regardless of residency.

Table 70. Bear licence sales and percent hunter success by licence type, 1985 to 1988[a].

Licence Type	Licence Sales				Percent Hunter Success			
	1985	1986	1987	1988	1985	1986	1987	1988
1st Licence[b]	4,392	4,813	4,800	4,610	26%	37%	36%	26%
2nd Licence[c]	344	589	528	535	16%	37%	55%	50%
Free Permit	3,142	2,489	2,375	—	9%	27%	21%	—
Total	7,878	7,396	7,703	5,145	20%	37%	34%	29%

[a] All licence sales represent final sale figures as of June 1 in the following year; however, the data analysis was based on figures available in mid-February.

[b] Includes all 1st licences regardless of residency.

[c] Includes all 2nd licences regardless of residency.

2. Hunting Activity and Harvest

- The provincial harvest in 1988 was estimated to be 1,257 animals, which represents a 25% decline in harvest from 1987 and 27% below the 1984-87 average harvest of 1,720 bears (Table 71). However, if the free bear permits offered in 1984-87 are ignored, the 1988 harvest represents only a 6% drop from 1987 and a 14% drop from the 1984-87 average of 1,460 bears.
- Seventy percent of the harvest was from Forest WMZ. This was consistent with past years (1985-73%, 1986-76% and 1987-79%).
- Hunter success was estimated to be 26% and 50% for the first and second licence holders, respectively, compared to 38% and 56% for 1987, a decline in both categories.
- Bear hunting supplied an estimated 18,610 hunter days of recreation, a decline of 9% from 1987. However, if the 1987 free bear permits are again ignored, the hunter days actually rose 31% from 1987 to 1988.
- Spring versus fall harvest results are not available for the 1988 season but the fall bear harvest made up 30% of the total in 1987, 44% in 1986, 30% in 1985, and 44% in 1984. The 1988 spring season is presumed to comprise the major portion of the annual bear harvest.

3. Harvest Structure

- The provincial harvest structure was 2.65 boars:sow:0.21 cubs (Table 71). In terms of boar harvest this harvest structure was comparable to the 2.62 boars:sow:0.19 cubs of 1985 but above the 1986 and 1987 values of 2.19 and 2.02 respectively.

Biological Collection Program

- Tooth samples from spring bears were analyzed and found to contain a low representation of prime age females (Fig. 21). If this sample

Table 71. Provincial bear harvest and hunter activity (1st, 2nd and free bear licences combined) by ecological zone, 1985 to 1988.

Ecological Zone	Actual Hunters				Harvest				Percent Hunter Success			
	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
Parkland	172	208	202	229	51	93	74	66	29.7	44.7	36.6	28.8
Fringe	740	950	710	829	208	460	278	290	28.1	48.4	39.2	34.9
Forest	2,597	3,671	2,470	3,277	617	1,387	977	886	23.8	37.8	37.6	27.0
	(4,168)[a]	(5,235)	(3,925)		(764)	(1,810)	(1,310)		(18.3)	(34.6)	(33.4)	
Shield	43	57	43	62	15	28	9	15	34.9	49.1	20.9	24.2
Total	3,552	4,886	3,425	4,397	891	1,968	1,338	1,257	25.1	40.3	39.1	28.6
	(5,123)	(6,450)	(4,880)		(1,038)	(2,391)	(1,671)		(20.3)	(37.1)	(34.2)	

Ecological	Harvest Structure				Hunter Days				Hunter Days/Animal			
	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
Parkland	1.50:1:0.00	3.19:1:0.69	3.18:1:0.18	2.05:1:0.25	705	1,015	812	951	13.8	10.9	10.9	14.4
Fringe	5.43:1:0.33	1.42:1:0.27	1.47:1:0.10	2.26:1:0.12	3,421	4,214	2,741	3,468	16.4	9.2	9.9	11.9
Forest	2.87:1:0.24	2.65:1:0.32	2.17:1:0.19	2.81:1:0.24	10,727	14,978	10,469	13,941	17.4	10.8	10.7	15.7
	(2.27:1:0.19)	(2.49:1:0.56)	(2.11:1:0.27)		(16,606)	(20,275)	(16,647)		(21.7)	(11.2)	(12.7)	
Shield	15.40:1:0.23	0.91:1:0.00	6.00:1:3.00	15.30:1:0.00	190	227	185	250	12.7	8.1	20.6	16.7
Total	2.75:1:0.23	2.24:1:0.46	2.04:1:0.17	2.65:1:0.21	15,043	20,434	14,207	18,610	16.9	10.8	10.6	14.8
	(2.62:1:0.19)	(2.19:1:0.47)	(2.02:1:0.23)		(20,922)	(25,731)	(20,385)		(20.2)	(10.4)	(12.2)	

[a] Free bear permits included in parenthesis.

was characteristic of the hunted bear populations in Saskatchewan then low recruitment can be anticipated.

4. Elimination of Free Bear Licences - WMZ 58-61

- Free bear licences for other big game hunters were eliminated in 1988. Low bear populations and a constant demand for bear hunting in Saskatchewan negates any need for reinstatement of free licences in 1989.

B. POPULATION STATUS

- Bear density information was unavailable in 1988. Field reports suggest that the bear population is low and may remain below the 1987 population level in the foreseeable future.

C. CURRENT ISSUES

1. Bear Hunting Pressure

- Licence sales figures for 1988 indicate bear hunting in Saskatchewan has maintained its popularity. While total sales have remained relatively constant during the 1984 to 1988 period, there has been a 150% increase in licence sales from the mid-1970's to the present, and hunter-days have approximately doubled since 1980. In recent years, guides and outfitters have recognized that a sizeable commercial market was available for providing services to bear hunters. The non-resident component of total licence sales has grown significantly during the 1985 to 1988 period. In 1985, non-resident hunters comprised 10% of total sales, increasing to 15%, 21%, and 29% for 1986, 1987, and 1988, respectively. It is possible that resident interest in bear hunting has stabilized, but non-resident interest continues to grow.

2. Population Levels

- Historically, the black bear was viewed as a predator and a nuisance wildlife species. In recent years, bears have been elevated in status, and are now recognized as a big game animal. The sex/age harvest information obtained from northeastern Saskatchewan in 1985 and northwestern Saskatchewan in 1986 provides preliminary data on the bear population structure (Figs. 17 and 18). Subsequent data (1987 and 1988) has contributed to the knowledge of sex/age changes in hunter harvest (Figs. 19, 20 and 21).
- Non-breeding, sub-adult females (≤ 4.5 years old), comprised 43% (1985), 66% (1986), 65% (1987), and 57% (1988 spring, only) of the collections through the 1985-88 period (Figs. 17 and 22).
- Within the breeding segment of the population, the female proportion in the 1988 (spring) harvest was 41% (Fig. 21) as compared to 59%, 42% and 48% in 1985, 1986 and 1987 respectively.
- Trophy bears, by previous definition those aged 8.5 or more years, comprised 24% of the provincial sample (Fig. 21). Values for previous years were 24%, 20% and 24% for 1985, 1986 and 1987, respectively.

3. Reproductive Biology

- Reproductive tracts were collected from 17 female bears and examined for evidence of reproductive history.
- The above sample revealed that: 1) females first gave birth at age five years, 2) they gave birth every other year, 3) average litter size was 2.3 cubs, and 4) they became reproductively senile at about age 22.

4. Colour Phase Ratio

- Hunters tend to select for off-colour bears. This leads to shifts in colour phase representation in the harvest.
- In northwestern Saskatchewan the ratio of off-colour to black phase bears in the harvest appears to be declining (0.35:1 in 1986, 0.28:1 in 1987,

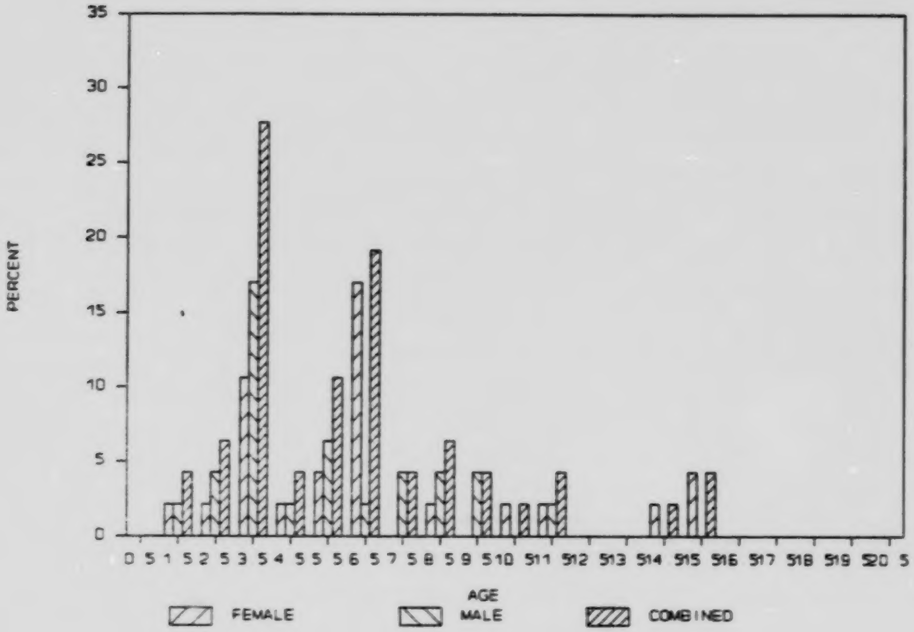


Fig. 17. Sex and age composition of 1985 bear harvest, northeastern Saskatchewan (n=47).

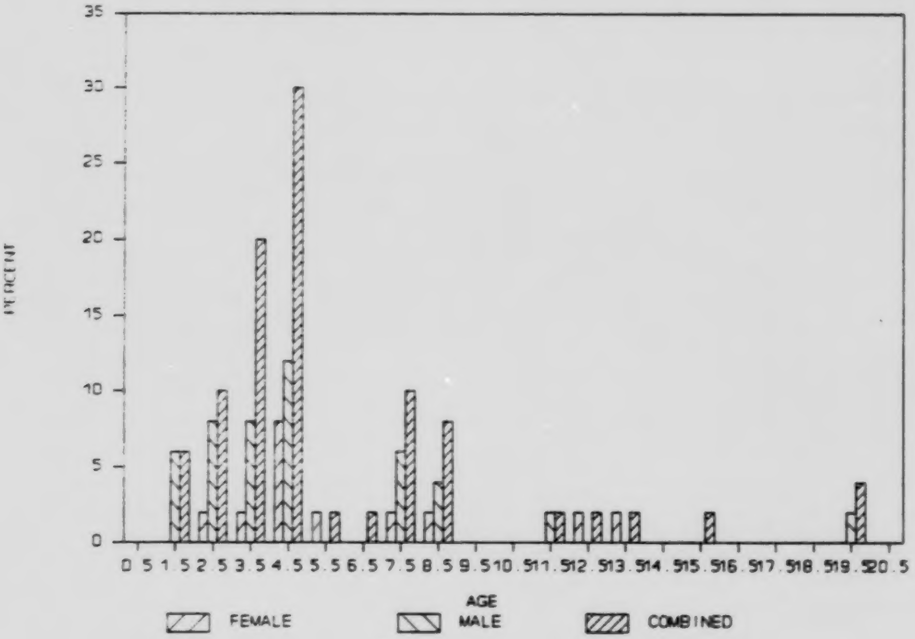


Fig. 18. Sex and age composition of the 1986 bear harvest, northwestern Saskatchewan (n=50, 14 of undetermined sex).

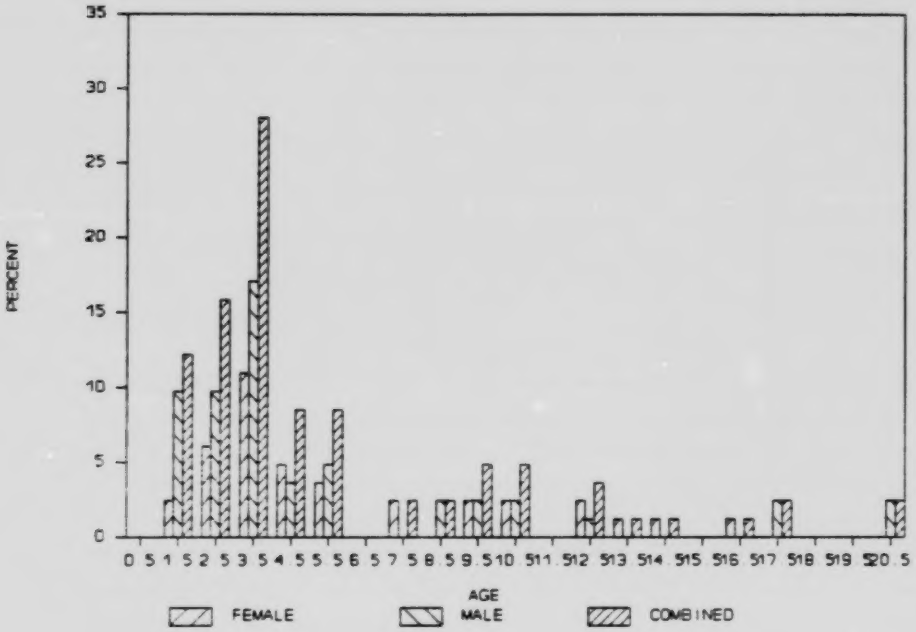


Fig. 19. Sex and age composition of the 1987 bear harvest, northwestern Saskatchewan (n=82).

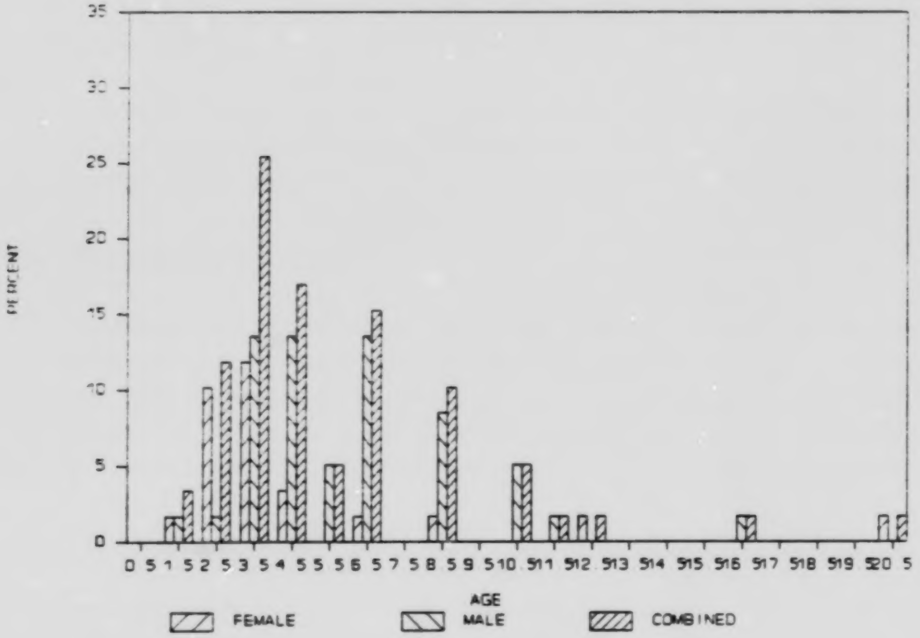


Fig. 20. Sex and age composition of the 1988 bear harvest, northwestern Saskatchewan (n=59).

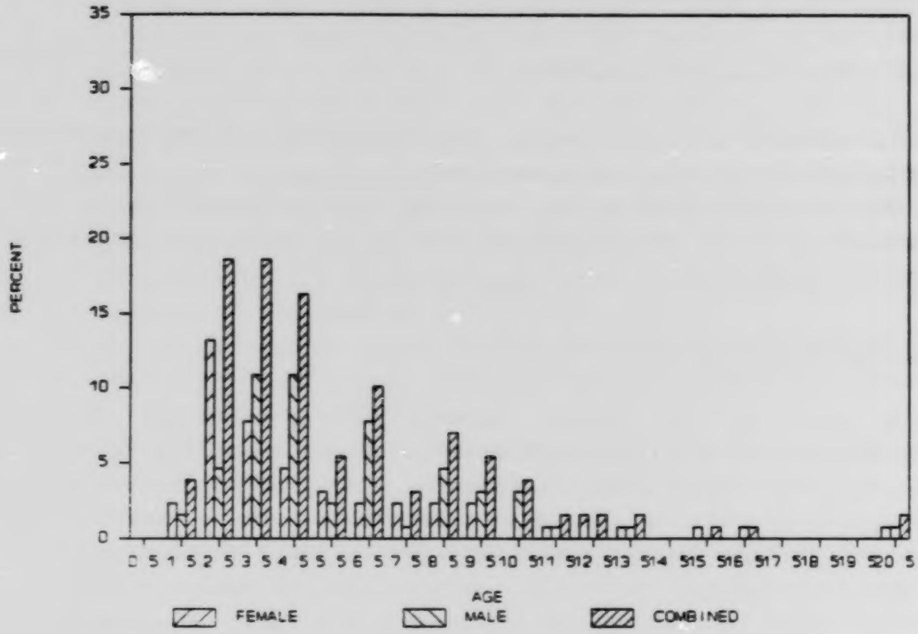


Fig. 21. Sex and age composition of the 1988 bear harvest, northern Saskatchewan (n=129, 3 of undetermined sex).

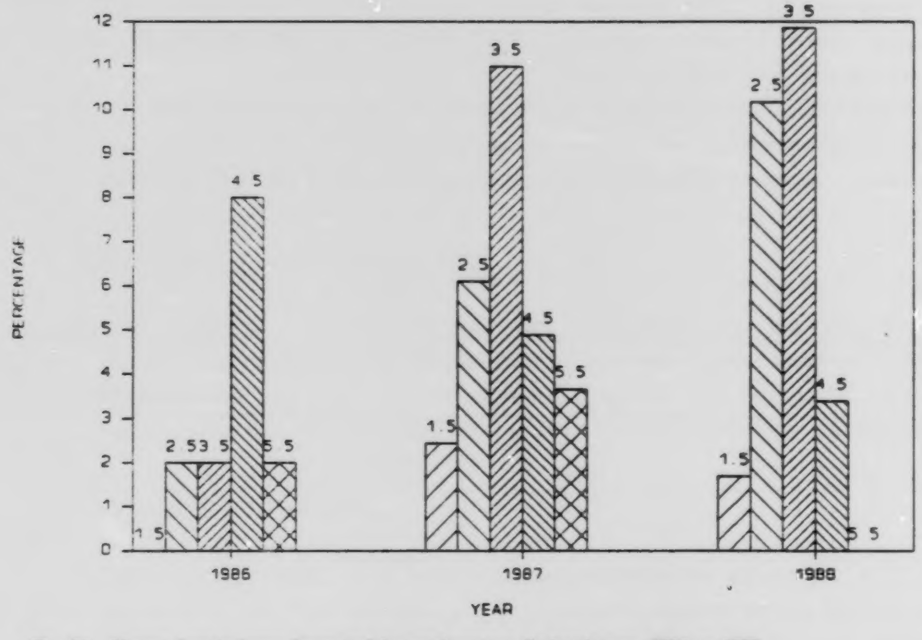


Fig. 22. Young female bears harvested in northwestern Saskatchewan, 1986 to 1988.

and 0.24:1 in 1988) although variations between years were not significantly different.

5. Female Representation in Harvest

- Hunters select for large bears. Initially this affords some protection to females which tend to be smaller than boars.
- In northwestern Saskatchewan the 1988 female to male ratio of 0.63:1 declined slightly from 0.72:1 in 1987 but remains well above the 1986 level of 0.30:1.

6. Male Age in Harvest (excludes cubs)

- Male ages in the annual harvest have varied in northwestern Saskatchewan. In 1988 mean ages of boars increased to 5.61 years (±2.93) and was probably associated with the expansion of hunting efforts into previously unhunted forest areas. Values for 1986 and 1987 were 5.32 years (±4.74) and 4.98 years (±4.95), respectively.
- Average age for the provincial sample was 5.75 years (±3.82).

7. Female Age in Harvest (excludes cubs)

- Unlike boars, female ages have continued to decline. The mean 1988 value was 4.4 years (±4.34), down from 5.59 years (±4.04) in 1987 and 6.09 years (±3.46) in 1986.
- Age distribution analysis confirmed a continuous decline in age between the three years.
- Average age for the provincial sample 4.90 years (±3.85).

Table 72. Sex and age ratios for bears taken on 1st and 2nd licences.

Year	Licence	Male:Female:Cub	Significance M:F
1988	1st	2.65:1:0.25	
	2nd	2.63:1:0.38	
1987	1st	2.28:1:0.19	Sig. Diff
	2nd	1.06:1:0.10	(P<.005)
1986	1st	2.38:2:0.31	Sig. Diff.
	2nd	1.40:1:0.33	(P<.005)

8. Elimination of the Second Bear Licence

- The above information is indicative of a population being harvested at or above its capacity to sustain its numbers. A reduced harvest and continued monitoring will be in order.
- The second licence accounted for 13% of the 1988 harvest while it represented 11% of the take in 1986 and 13% in 1987.
- While not evident in the 1988 data, a disproportionate number of females were taken on the second licence in 1986 and 1987 (Table 72). Elimination of the second licence would not only reduce harvest but potentially, and beneficially, afford more protection to the female segment of the population.
- The proportion of sales attributable to second licence (11% in 1986, 10% in 1987 and 10% in 1988) purchases mirrored the harvest percentage in the three years.
- Hunter recreation days associated with the second licence represented 1,127, 1,145, and 1,839 days in 1988, 1987 and 1986, respectively. These values correspond to 6%, 8% and 9% of all recreation days calculated for licenced bear hunting in the respective years.
- Elimination of the second licence is expected to reduce the bear harvest, licence sales and recreation days by approximately 10%.

D. 1989 MANAGEMENT OBJECTIVES

1. No Protection in Agricultural Saskatchewan

- In agricultural Saskatchewan, WMZ 1-36, 38-41 and 44-47, bears may be hunted at any time of year without a licence in order to reduce depredation problems in bee yards and dangerous bear-human interactions.

2. Elimination of the Second Bear Licence

- The need to reduce the harvest of bears in accessible parts of the forest warrants elimination of the second bear licence for 1989 seasons. Population monitoring through biological collections and field reports will continue to determine if further action was warranted.

3. Increase Biological Data

- The recreational and economic significance of the black bear as a big game species has become an important aspect of wildlife management in Saskatchewan. Collection of bear sex/age harvest and reproduction data will be intensified to permit a higher degree of precision in estimating the current population status. Harvest data will be collected not only from Saskatchewan resident hunters but also from non-resident hunters through required reporting by the licenced bear hunting outfitters of the province. Reproductive tracts will be collected on a voluntary basis.

E. 1989 BLACK BEAR SEASONS

Spring Season

April 10 - June 10

Wildlife Management Zones 37, 42, 43 and 48 to 69 including Fort a la Corne Wildlife Management Unit, Nipawin Provincial Park and the Bronson Recreation Site (licence required)

April 24 - June 24

Wildlife Management Zones 70 to 76 (licence required).

April 10 - May 27

Duck Mountain, Greenwater Lake and Meadow Lake Provincial Parks, (licence required).

April 24 - May 27

Lac la Ronge and Clearwater River Provincial Parks (licence required).

Bag Limit

One bear, either sex. No second bear licence for 1989.

In Wildlife Management Zones 1 to 36, 38 to 41 and 44 to 47, bears may be hunted at any time of year without licence subject to the Wildlife Regulations.

Fall Bear (Sask. Residents, Canadian Residents, and Non-residents)	Zones 37, 42, 43 and 48 to 76, including Cookson, Horsehide Lake and Leaf Lake Wildlife Management Units	Aug. 28 - Oct. 14	one bear either sex;	• Unused spring bear licences are valid in the fall season.
	Clearwater River, Lac La Ronge, Meadow Lake, Nipawin and Duck Mountain Provincial Parks; and Bronson Forest Recreation Site	Sept. 6 - Oct. 14	one bear, either sex;	
	Fort a la Corne Wildlife Management Unit only	Sept. 25 - Oct. 14	one bear, either sex;	

WOODLAND CARIBOU

A. REVIEW OF PAST HUNTING SEASON

- The woodland caribou season was closed province-wide in 1987, in response to the apparent absence of caribou from large parts of their southern range.
- Fewer than 200 licences had been sold annually when a season was in place in recent years. This fact and a low harvest suggest that woodland caribou are not a popular species to hunt. Reasons might include:

1. Scarcity of animals.
2. Remoteness to hunter access.
3. A reputation for being difficult to hunt.

B. POPULATION STATUS

- Minimal snow cover during the early part of the 1988-89 winter prevented any attempts at obtaining density or population structure information on woodland caribou by aerial survey counts. After December 31, surveys are considered unreliable because of the separation of bulls from the cow/calf herds.

C. 1989 MANAGEMENT OBJECTIVES

- The woodland caribou season will remain closed until such time as better biological information is available on their population status.
- Wildlife Branch will continue with its woodland caribou study which includes a caribou habitat inventory, completion of designated aerial surveys and initiation of a management plan.
- Upon completion of the above, including a review of woodland caribou status in other parts of western Canada, the future of caribou hunting in Saskatchewan will be reassessed.

D. 1989 WOODLAND CARIBOU SEASONS

- There will be no 1989 woodland caribou season in Saskatchewan.

BARREN-GROUND CARIBOU

A. REVIEW OF 1988 HUNTING SEASON

- As in past years, only residents of WMZ 76 were allowed to hunt barren-ground caribou. Sport hunters were permitted a two either-sex caribou bag limit with the purchase of two separate licences during a hunting season from November 21, 1988 to the end of March 1989.
- A special Subsistence Use Hunting Policy and Licence came into effect October 15, 1988. Eligible applicants were selected by a three member committee consisting of two Caribou Management Board members from Saskatchewan (Hugh Hunt and Philip Stenne), and a representative from each community in question. Criteria centered on long-term residency of WMZ 76 and a past tradition of hunting caribou for food.
- Eligible hunters were permitted a two caribou bag limit per licence plus an additional two caribou for every eligible dependent (non-hunter) listed on the licence. The season ran from October 15, 1988 to April 15, 1989.
- No licences were sold and no caribou harvested under the subsistence use system in 1988-89 because the few caribou that entered Saskatchewan were too far away to hunt. Snow conditions obstructed any major migration of animals into Saskatchewan.
- In 1988-89, 19 first sport licences and 15 second sport licences were sold but no caribou were harvested. Recreational caribou hunting was only practical in the Northwest Territories, and so done under the auspices of Border A licences (issued by the Government of the Northwest Territories).

B. POPULATION STATUS

- Although residents of WMZ 76 have access to both the Beverly and Kaminuriak herds, only the Beverly herd was within hunting range during the winter of 1988-89.
- Regulated hunting pressure continues to be negligible. The overall 1988-89 harvest, comprised entirely of unregulated and subsistence hunters, was well below the 11 year average of 4,000 caribou.
- The most recent population estimate on the Beverly herd (290,000) comes from an aerial survey conducted in 1988. This represents an apparent decline from previous years.
- Beverly herd winter movements included only the extreme northeast corner of Saskatchewan in 1988-89. This coincides with above normal snowfall in early winter and severe slush conditions over most of the winter range.

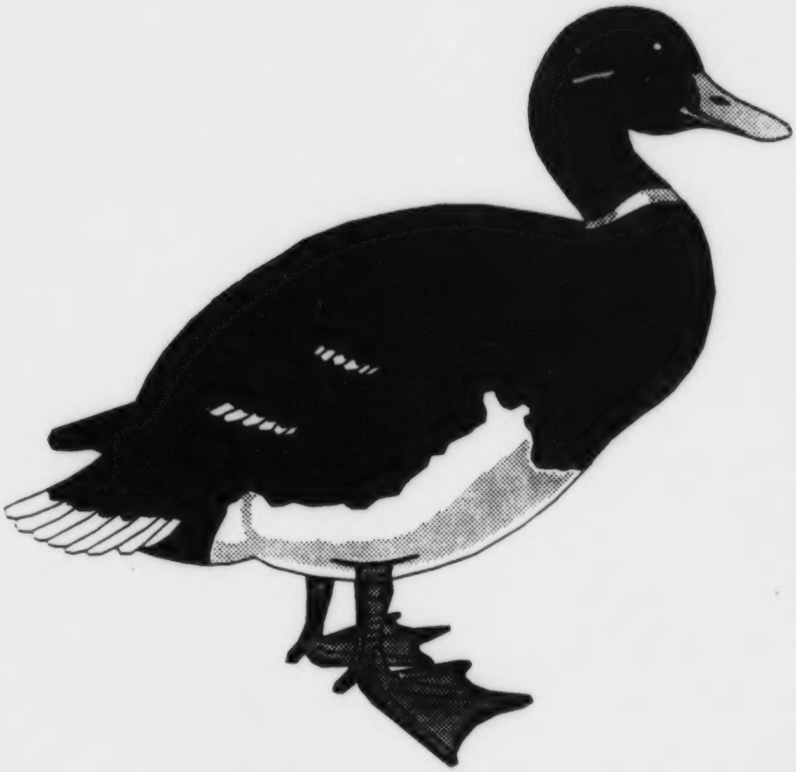
C. MANAGEMENT OBJECTIVES FOR 1989

- The Caribou Management Board continues to co-ordinate management of the Beverly and Kaminuriak herds. Details of several strategies involving Saskatchewan hunters can be found in the published management plan.
- The harvest study, in its tenth year, provided an accurate estimate of the overall harvest by Saskatchewan residents. The study will continue during the 1989-90 season.
- A brief distribution survey was flown in January 1989 which, combined with interviews with people on the caribou range, provided a rough approximation of caribou winter distribution. The same is planned for the 1989-90 winter season.
- Saskatchewan continues to participate in and provide financial support for Caribou Management Board meetings, community meetings, the caribou schools program, and the Caribou News newsletter.

D. 1989 BARREN-GROUND CARIBOU SEASONS

Barren-ground Caribou (Sask. Residents of Zone 76 Only)	Zone 76	Nov. 20 - Mar. 31, 1990	two barren-ground caribou either sex; separate licences required	• "Residents of Zone 76" means a Saskatchewan resident who has lived in Zone 76 for three months immediately preceding the date of licence purchase.

GAME BIRDS



GENERAL INFORMATION

Hunting Regulations

The 1988 and proposed 1989 game bird hunting seasons and bag limits are outlined in Appendices 11 and 12, respectively. Season dates and bag limits from the recent past are presented in Appendix 13 (a-f). Appendix 14 illustrates the 37 former game management zones, established in 1975 and used until 1983. Appendix 15 illustrates the 76 Wildlife Management Zones (WMZ) used since 1984.

Data Collection Techniques

Licence Sales

Licence sales are tabulated by the Revenue Section, Management Services Branch of Saskatchewan Parks, Recreation and Culture, using licence returns from vendors and department offices.

A total of 32,077 Saskatchewan game bird hunting licences were sold to provincial residents in 1988, down 9% from 1987 and 36% below the 15 year average of 50,409 (Tables 1 and 73). Poor duck hunting opportunity is believed to have been mainly responsible for the depressed sales. Licence sales to other Canadians (1,648) were down by 19% and non-residents of Canada (3,031) dropped by 22% producing a total of 36,756 licences sold. From 1983 to 1988, Saskatchewan residents did not require a separate licence to hunt cock pheasants.

Saskatchewan Game Bird Hunter Questionnaire Survey

Twenty thousand (20,000) of the of the 35,000 resident game bird hunters from 1987 were randomly selected to receive the 1988 Hunter Survey, using 1987 licence stubs (Appendix 16 and 17). The total useable response by the March 3, 1989 cut-off date for receipt of resident returns was 23%. The return rate for the 1987 survey was 27%. **Since 1981, hunter survey returns have consistently declined each year.**

In addition, 1,500 Canadian resident bird hunters and 1,500 non-resident of Canada hunters (primarily Americans) were sampled. Total useable responses and expansion factors used in computer analysis were as follows:

	Total Usable Responses			Expansion Factors		
	1988	1987	1986	1988	1987	1986
Saskatchewan Residents	4,602	5,316	5,800	6.94	6.22	7.01
Canadian Residents	268	246	503	6.30	7.60	4.10
Non-Residents	337	596	495	9.75	6.19	7.29

Table 73. Saskatchewan game bird licence and Federal migratory game bird permit sales, 1966 to 1988.

Year	Game Bird Licence Sales (%) Saskatchewan Resident (%)	Canadian Resident (%)	Non-Resident (%)	Total	Federal Migratory Game Bird Permit Sales[a]
1987	35,190 (85.59)	2,029 (4.94)	3,895 (9.47)	41,114	29,930
1986	41,317 (87.53)	2,158 (4.57)	3,731 (7.90)	47,206	37,692
1985	38,243 (87.07)	2,181 (4.97)	3,497 (7.96)	43,921	36,445
1984	40,102 (88.13)	2,125 (4.67)	3,277 (7.20)	45,504	37,720
1983	47,157 (87.53)	2,978 (5.53)	3,741 (6.94)	53,876	45,383
1982	50,179 (86.62)	3,719 (6.42)	4,034 (6.96)	57,932	47,236
1981	49,034 (86.56)	3,813 (6.73)	3,801 (6.71)	56,648	42,856
1980	59,151 (88.45)	3,929 (5.88)	3,793 (5.67)	66,873	54,081
1979	59,044 (87.63)	3,907 (5.80)	4,429 (6.57)	67,380	56,174
1978	60,901 (87.79)	3,827 (5.52)	4,645 (6.70)	69,373	57,958
1977	62,205 (88.00)	3,901 (5.52)	4,583 (6.48)	70,689	60,029
1976	62,288 (86.53)	4,746 (6.59)	5,030 (6.98)	72,064	61,669
1975	57,275 (87.26)	4,312 (6.57)	4,048 (6.17)	65,635	57,723
1974	52,591 (87.36)	3,821 (6.35)	3,790 (6.30)	60,202	51,504
1973	50,586 (88.60)	2,898 (5.08)	3,609 (6.32)	57,093	51,307
1972	47,217 (81.46)	5,605 (9.67)	5,140 (8.87)	57,962	50,004
1971	45,398 (81.11)	5,076 (9.07)	5,496 (9.82)	55,970	49,448
1970	48,685 (84.32)	4,866 (8.43)	4,190 (7.26)	57,741	47,722
1969	46,709 (85.98)	3,410 (6.28)	4,204 (7.74)	54,323	45,347
1968	52,430 (93.27)	Not Required	3,784 (6.73)	56,214	43,596
1967	52,598 (93.62)	Not Required	3,583 (6.38)	56,181	44,651
1966	50,687 (93.90)	Not Required	3,294 (6.10)	53,981	44,744
1966-87 Average	50,409	3,647[b]	4,072	57,631	47,874
1988	32,077 (87.27)	1,648 (4.48)	3,031 (8.25)	36,756	23,258
% Change 1988 from 1987	-9%	-19%	-22%	-11%	-22%
1988 from Average	-36%	-55%	-26%	-36%	-51%

[a] Permits sold in Saskatchewan.
[b] 1969-87 average.

The returned questionnaires were edited by the Statistics and Evaluation Section of Management Services and keypunched by Management Services Branch. Don Fowler, a Saskatoon consultant, conducted the computer analysis of the data. Computer printouts were available April 2, 1989 and were used extensively to write this report. Projected hunter participation (active hunters) and recreation days per species is depicted in Figs. 23 and 24.

Wing Collection

A total of 1,467 wings were collected from hunter-bagged upland game birds in the fall of 1988 to derive population age structures, from which reproductive success can be inferred. The 1988 sample decreased by 56% from the 3,342 wings collected in 1987. Conservation officers collected wings from hunters encountered in the field and enlisted the assistance of wildlife organizations to obtain samples. Wildlife Branch staff collected wings on an incidental basis.

Experienced Wildlife Branch staff, Marvin Hlady, Phil Haughian and Fred Beek, aged the wings according to primary feather eruption and wear.

Population Surveys

Upland game bird populations were surveyed between April 4 and May 15, 1989 by Wildlife Branch staff and Conservation officers. The data was compiled and analyzed by the Wildlife Branch.

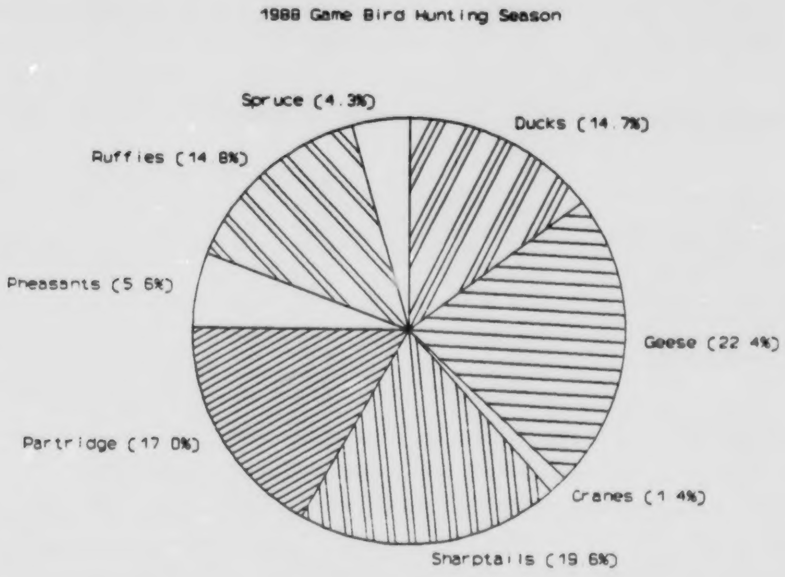


Fig. 23. Hunter participation by species in the 1988 game bird hunting season.

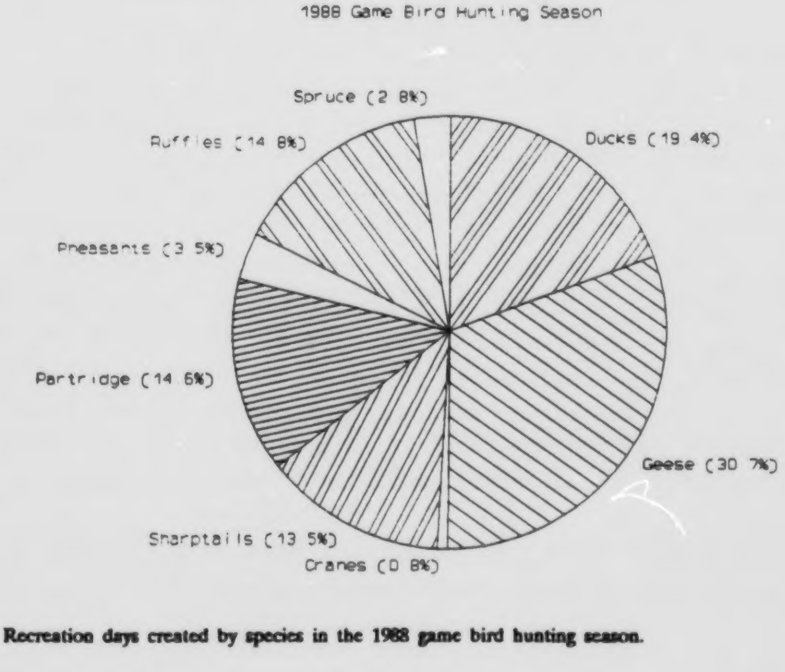


Fig. 24. Recreation days created by species in the 1988 game bird hunting season.

MIGRATORY BIRDS

A. INTRODUCTION

The Canadian Wildlife Service (CWS) is primarily responsible for management of migratory birds, although in Saskatchewan they are managed in consultation with the provincial authority. CWS collects most of the prerequisite data. Their migratory game bird hunter survey was complemented by the Saskatchewan Game Bird Hunter Survey (Appendix 16), the 1988 results of which are reported herein.

From 1979 to 1984, stabilized duck regulations were in effect. With a daily bag limit of eight birds those regulations were considered liberal. The 6-year framework of stabilized duck regulations ended in 1985 when bag limits were reduced to four birds per day. Bag limits were relaxed in 1986 and 1987, providing for six ducks per day of which only four could be mallards. Additionally, the duck season in southern Saskatchewan was delayed to September 15. These measures were taken to effect a 25% reduction in mallard harvest from that expected under stabilized regulations. This reduction has been achieved each year.

In 1988 duck regulations were further restricted to five ducks daily of which only three could be mallards. This resulted in a 57% reduction in the harvest rate of mallards from that expected under stabilized regulations.

Goose hunting regulations have remained stable except for calendar adjustments.

B. REVIEW OF 1988 HUNTING SEASON

The number of Migratory Game Bird permits sold in the province has declined in recent years. There were 23,258 federal Migratory Game Bird permits sold in 1988 compared to 29,930 in 1987, a decrease of 22% (Table 73).

Waterfowl (duck and goose) hunter days decreased by 23% from 1987 with an estimated 21,479 active hunters, 51% below the 15-year average. In 1988 waterfowl hunters spent an average of 3.4 days in the field, slightly below 1987 (4.0 days), but above the 15-year average of 3.0 days (Table 74).

Table 74. Saskatchewan waterfowl hunting activity, 1973 to 1988[a].

Year	Active Waterfowl Hunters	Waterfowl Hunter Days	Hunter Days/ Active Hunter
1973	43,200	116,700	2.7
1974	47,700	150,000	3.1
1975	56,100	175,500	3.1
1976	58,500	188,600	3.2
1977	57,100	163,300	2.9
1978	52,300	135,400	2.6
1979	51,300	138,300	2.7
1980	48,600	128,200	2.6
1981	38,300	98,100	2.6
1982	42,400	108,200	2.5
1983	42,900	122,900	2.9
1984	32,000	94,100	2.9
1985	32,970	105,100	3.2
1986	34,821	119,627	3.4
1987	23,930	95,045	4.0
1988	21,479	73,279	3.4
1973-1987 Average	44,141	129,272	3.0
% Change 1988 from 1987	-10%	-23%	-15%
1988 from 1973-87 Average	-51%	-43%	+13%

[a] Waterfowl hunting activity includes both duck and goose hunting.

C. OTHER WATERFOWL REGULATIONS

Five hundred meter restrictions on major waterfowl staging areas were set by the province. There were no proposed changes to the existing protected waterbodies. A few requests for 500 metre restrictions will be evaluated in 1989.

Game Bird Hunting Closed

The following areas are closed to hunting:

Cypress Lake and the islands thereon, 10 miles north of Consul; Horsehide Lake and the islands thereon, 8 miles south of Mistatim; Tobin Lake and the islands thereon; Witchekan Lake (north of Spiritwood)

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge between September 11, 1989, and November 4, 1989 both dates inclusive:

Boulder Lake, 10 miles southeast of Watrous
Ibsen Lake, 4 miles west of Yellow Grass

The islands in the North Saskatchewan River between the Paynton Ferry and the Alberta Border.

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge between September 18, 1989 and November 4, 1989 both dates inclusive:

Barber Lake, 3 miles north of Wiseton

Cactus Lake, 12 miles southeast of Macklin Cutbank Lake, 3 miles northwest of Gidden; Castlewood Lake, 3 miles north of Biggar

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge until November 6, 1989:

Antelope Lake, 8 miles north of Gull Lake; Avonlea Reservoir, 3 miles southeast of Avonlea; Bigstick Lake, 10 miles east of Golden Prairie; Birch Lake, 10 miles northeast of Glaslyn; Buffalo Coulee Lake, 8 miles northwest of Coleville; Cabri Lake, 10 miles south of Mantario; Deep Lake, 5 miles south of Indian Head; Dewar Lake, near town of Dewar Lake; Ear Lake, 6 miles east of Reward; Eyre Lake, 7 miles west of Mantario; Flat Lake, 3 miles southeast of Wilkie; Goose Lake, 7 miles east of Harris Gooseberry Lake, 13 miles northeast of Fillmore; Grassy Lake, 7 miles northwest of Luseland; Highfield Reservoir, 18 miles east of Swift Current; Handsome Lake, 6 miles north of Rush Lake; Junction Dam, 2 miles north of Maple Creek; Kiyiu Lake, 6 miles north of Netherhill; Lac la Course, 6 miles southeast of Pelly; Leech Lake, 8 miles south of Yorkton; Lomond Lake, 3 miles northwest of Preeceville; Luck Lake, 4 miles west of Birsay; Mallard Bay, 8 miles north of Mortlach; Mud Lake, 10 miles north of Wynyard Muddy Lake, 7 miles south of Unity; Opuntia Lake, 4 miles east of Plenty; Paysen Lake, 19 miles north of Chaplin; Saline Lake, 2 miles southwest of Invermay; Silver Lake, 7 miles north of Sheho; Snipe Lake, 7 miles northwest of Eston; Stonewall Lake, 2 miles south of Invermay; Teo Lake, 8 miles west of Kindersley; Thackeray Lake, 2 miles east of Thackeray; Thomson Lake, 3 miles northwest of Lafleche; Waterhen Marsh, 4 miles south of Kinistino

- That portion of the Waterhen River, 3 miles west and 2 miles east from the Highway No. 4 crossing (5 miles north of Dorintosh, WMZ 69).
- That portion of the South Saskatchewan River lying between Gardiner Dam and the north boundary of Township 30, Range 8, West of the Third Meridian.
- That portion of the South Saskatchewan River and Lake Diefenbaker lying between the Alberta border and Saskatchewan Landing Bridge.
- That portion of the North Saskatchewan River lying between the Paynton Ferry and the Borden Bridge.

DUCKS

A. REVIEW OF 1988 HUNTING SEASON

The estimated retrieved kill of ducks in Saskatchewan during 1988 was 72,186 birds, a 47% decrease from the 135,977 taken in 1987, and 78% below the 1979-84 average (Table 75; Fig. 25). Mallard harvest decreased by 49% from 101,245 in 1987 to 51,384 in 1988 (Table 76). The majority of the mallard harvest occurred from September 28 to October 26 (Fig. 26).

Table 75. Estimated retrieved kill of ducks in Saskatchewan 1979 to 1988 by zone (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa; Provincial estimates via SPRC).

Year	Federal Estimates				Provincial Estimates
	Zone 1	Zone 2	Zone 3	Total[a]	
1979	173,336	154,397	254,960	582,693	553,790
1980	144,446	129,774	169,331	443,551	397,608
1981	82,305	70,474	120,472	273,251	239,753
1982	95,401	84,602	144,144	324,147	291,539
1983	125,434	75,343	180,967	381,744	326,100
1984	80,266	72,159	105,243	257,668	183,000
1979-84 Average	116,865	97,792	162,520	377,176	331,965
1985	79,411	49,232	82,275	210,918	152,978
1986	81,291	58,489	86,698	226,478	181,077
1987	64,830	59,237	77,452	201,519	135,977
1985-87 Average	75,177	55,653	82,142	212,972	156,677
1988	30,321	41,785	32,670	104,777	72,186
% Change					
1988 from 1987	-53%	-29%	-58%	-51%	-47%
1988 from 1979-84 Average	-74%	-57%	-80%	-72%	-78%
1988 from 1985-88 Average	-60%	-25%	-60%	-51%	-54%

[a] Total includes Zones 1, 2 and 3.

Duck harvest per active Saskatchewan resident, non-resident Canadian and non-resident alien averaged 5.1, 5.0 and 8.0 birds, respectively. For the sixth consecutive year there have been more active goose hunters (19,646) than duck hunters (12,935)(Table 77).

B. POPULATION STATUS

Most of the Grassland and Aspen Parkland regions of Alberta, Saskatchewan and Manitoba received below normal precipitation during the summer of 1988. The fall was generally warm and dry across the southern prairies resulting in low soil moisture levels at freeze-up, especially in southern Saskatchewan.

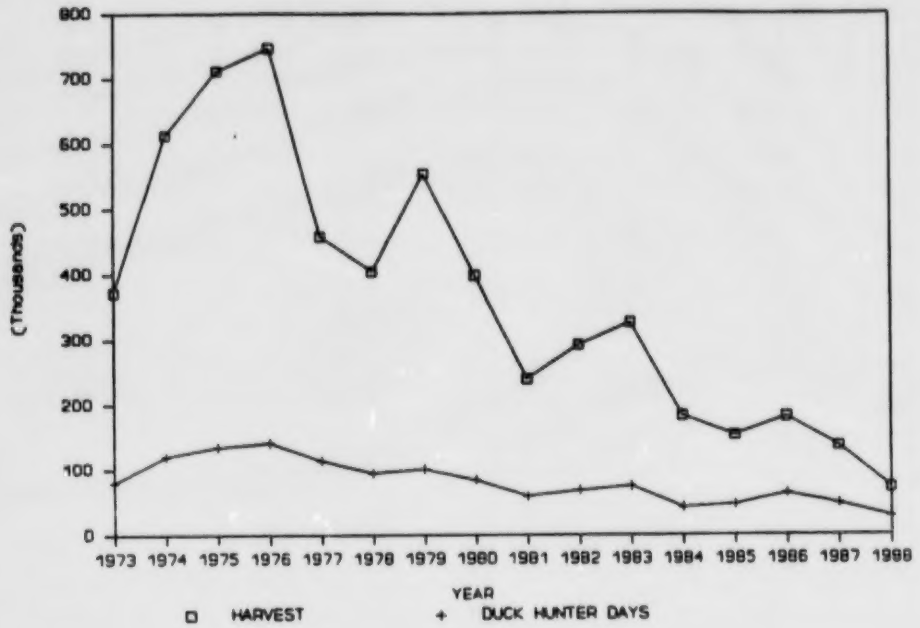


Fig. 25. Saskatchewan duck hunter days and harvest, 1973 to 1988.

Table 76. Estimated retrieved kill of mallards in Saskatchewan 1979 to 1988 (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa; Provincial estimates via SPRC).

Year	Federal Estimates				Provincial Estimates
	Zone 1	Zone 2	Zone 3	Total[a]	
1979	117,330	119,394	185,940	422,664	432,351
1980	116,997	107,808	129,841	354,646	322,050
1981	68,721	55,082	106,391	230,194	195,953
1982	71,046	64,080	106,006	241,132	222,317
1983	99,291	48,263	138,238	285,792	244,541
1984	58,099	46,116	77,467	181,682	140,764
1979-84 Average	88,581	73,457	123,981	286,018	259,663
1985	54,464	37,728	66,236	158,428	111,338
1986	51,222	40,652	59,233	151,107	125,212
1987	53,011	46,739	59,288	159,038	101,245
1985-87 Average	52,899	41,706	61,586	156,191	112,598
1988	20,023	27,813	25,683	73,519	51,384
% Change					
1988 from 1987	-31%	-51%	-57%	-54%	-49%
1988 from 1979-84 Average	-59%	-69%	-79%	-74%	-80%
1988 from 1985-87 Average	-31%	-45%	-58%	-53%	-54%

[a] Total includes Zones 1, 2 and 3.

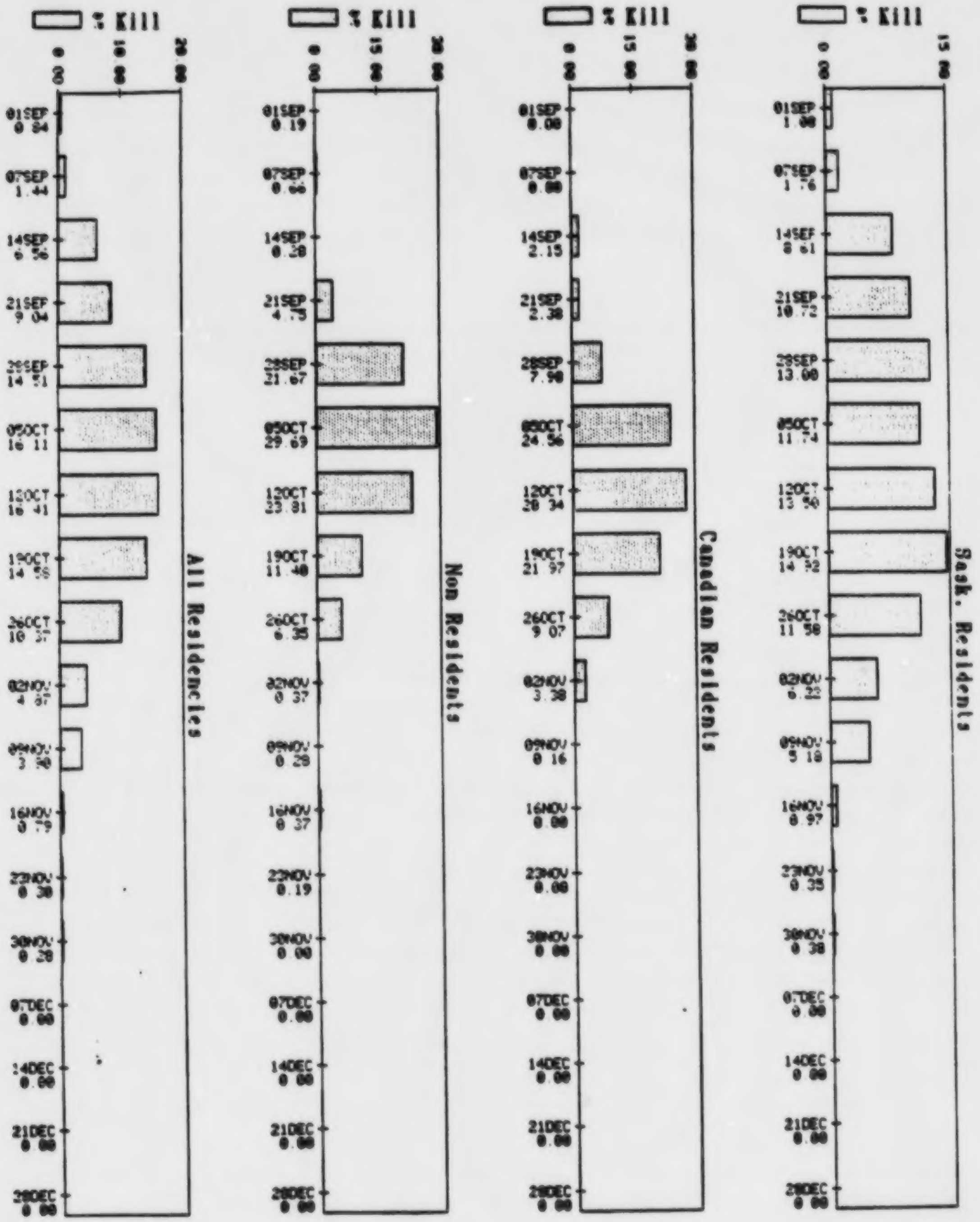


Fig. 26. Saskatchewan 1988 mallard harvest by residency and weekly interval.

Table 77. Saskatchewan waterfowl harvest summary, 1988.

	Sask. Resident		Non-resident, Cdn.		Non-resident, Alien		All Hunters	
Mallard Ducks - Drakes	28,690	39.74%	2,003	2.77%	8,892	12.31%	39,585	54.83%
Mallard Ducks - Hens	9,411	13.03%	750	1.03%	1,638	2.26%	11,798	16.34%
Mallard Ducks	38,101	52.78%	2,753	3.81%	10,530	14.58%	51,384	71.18%
Other Ducks	12,853	17.80%	1,241	1.71%	6,708	9.29%	20,802	28.81%
Total Ducks	50,953	70.58%	3,994	5.53%	17,238	23.88%	72,186	100.00%
Successful Hunters (% of Active)	8,439	(84.56%)	712	(88.97%)	2,028	(94.11%)	11,179	(86.42%)
Active Hunters	9,980		800		2,155		12,935	
Kill/Active Hunter	5.1		5.0		8.0		5.6	
Kill/Successful Hunter	6.0		5.6		8.5		6.5	
Days/Active Hunter	1.9		2.0		3.5		2.2	
Days/Successful Hunter	2.3		2.2		3.7		2.5	
Days Hunted	9,216.9		1,581.3		7,546.5		28,344.7	
Canada Geese	61,384	44.20%	6,143	4.42%	14,693	10.58%	82,220	59.20%
White-fronted Geese	19,619	14.12%	2,835	2.04%	7,079	5.09%	29,533	21.26%
Snow Geese	16,177	11.64%	1,607	1.15%	6,562	4.72%	24,345	17.53%
Ross' Geese	2,082	1.49%	158	0.11%	527	0.37%	2,766	1.99%
Total Geese	99,263	71.48%	10,742	7.73%	28,860	20.78%	138,864	100.00%
Successful Hunters (% of Active)	13,214	(85.95%)	1,323	(93.33%)	2,789	(97.61%)	17,325	(88.18%)
Active Hunters	15,372		1,418		2,857		19,646	
Kill/Active Hunter	6.5		7.6		10.1		7.1	
Kill/Successful Hunter	7.5		8.1		10.3		8.0	
Days/Active Hunter	2.0		2.7		3.7		2.3	
Days/Successful Hunter	2.3		2.8		3.8		2.6	
Days Hunted	30,640.1		3,767.4		10,539.8		44,947.3	
Waterfowl (D&G)	150,216	71.17%	14,736	6.98%	46,098	21.84%	211,050	100.00%
Successful Hunters (% of Active)	5,219	(89.72%)	1,443	(94.62%)	2,954	(98.69%)	19,616	(91.32%)
Active Hunters	16,961		1,525		2,993		21,479	
Kill/Active Hunter	8.9		9.7		15.4		9.8	
Kill/Successful Hunter	9.9		10.2		15.6		10.8	
Days/Active Hunter	2.9		3.5		6.0		3.4	
Days/Successful Hunter	3.3		3.7		6.1		3.7	
Days Hunted	49,850.0		5,342.4		18,086.3		73,278.7	

Snow pack on the prairies was generally normal to slightly below normal except in extreme southern Manitoba, southeastern Saskatchewan and southwestern Alberta where more favourable conditions persisted. Saskatoon and Prince Albert were two of the driest (as a percent of normal) areas in Saskatchewan. Prince Albert experienced the third driest winter on record (97 years).

May ponds in southern Saskatchewan, as determined by the CWS/USFWS spring breeding population survey, were down 19% from 1988 and remain 55% below the 10-year mean. The most significant loss of water was recorded for Strata 31 and 34 (east-central Saskatchewan) where May ponds decreased by 42 and 70%, respectively from last year (Table 78).

Table 78. Long-term trend in May pond estimates by stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean (estimates in thousands)[a].

Year		Stratum						
		30	31	32	33	34	35	Total
1955[b]		525.7	844.7	958.5	213.4	1,198.8	733.1	4,474.2
1956		315.9	414.9	729.4	103.2	746.9	452.6	2,762.9
1957		164.1	399.3	344.2	72.9	636.2	299.4	1,916.1
1958		210.0	319.0	367.8	108.2	466.8	344.1	1,815.9
1959		57.5	218.7	159.9	79.4	169.0	77.4	761.9
1960		166.3	692.6	394.8	90.0	487.4	270.3	2,101.4
1961		142.2	219.4	252.2	80.3	67.5	48.0	809.6
1962		176.8	422.8	343.1	49.8	291.3	64.8	1,348.6
1963		144.7	198.1	268.4	43.2	230.9	125.3	1,010.6
1964		203.3	369.1	333.1	66.8	593.7	403.7	1,869.7
1965		327.9	439.9	610.1	112.2	442.1	337.6	2,269.8
1966		350.8	587.3	595.1	133.0	593.7	404.9	2,664.8
1967		282.3	642.1	688.8	194.9	545.1	299.0	2,652.2
1968		219.5	312.6	383.4	61.8	123.5	58.5	1,159.3
1969		383.2	465.5	774.7	138.7	267.1	179.6	2,208.8
1970		289.6	628.7	763.8	106.8	721.3	518.1	3,028.3
1971		302.5	418.3	509.2	123.8	608.6	391.7	2,354.1
1972		356.5	659.8	364.7	64.5	552.2	306.2	2,303.9
1973		259.3	453.5	317.6	83.3	227.6	117.0	1,458.3
1974		465.6	910.9	822.0	133.8	945.4	462.1	3,739.8
1975		395.2	806.1	785.2	192.8	821.4	401.3	3,402.0
1976		201.9	398.9	553.3	96.9	657.1	671.5	2,579.6
1977		176.0	254.7	265.5	44.6	338.7	170.3	1,249.8
1978		274.0	393.5	566.1	161.7	545.4	280.7	2,221.4
1979		433.3	697.4	660.0	130.2	667.7	481.1	3,069.7
1980		265.5	311.3	358.2	48.1	273.3	137.2	1,393.6
1981		145.9	160.4	126.1	28.5	97.3	52.6	610.8
1982		284.0	630.6	705.3	119.3	251.5	213.8	2,204.5
1983		384.9	715.5	712.0	96.0	464.6	323.4	2,696.4
1984		283.1	548.4	267.0	35.2	250.6	127.0	1,511.3
1985		622.9	737.8	723.6	108.1	558.5	207.1	2,958.0
1986		343.8	402.5	615.2	112.8	529.1	346.3	2,349.7
1987		223.8	260.9	347.5	150.9	251.7	184.4	1,419.2
1988		217.6	378.7	149.4	37.2	213.6	63.6	1,059.9
1989		208.1	220.6	222.9	71.1	64.3	73.9	860.9
10-year mean		320.4	484.2	466.3	86.6	355.6	213.3	1,926.4
Long-term mean		282.2	479.8	494.6	100.6	463.8	280.9	2,101.8
Percent change:	1989 from 1988.	-4	-42	+50	+91	-70	+16	-19
	1989 from 10-year mean.	-35	-54	-52	-18	-82	-66	-55
	1989 from the long-term mean[c].	-26	-54	-55	-29	-86	-74	-60

[a] Adjusted for visibility bias.

[b] 1955 to 1960 unadjusted for visibility bias.

[c] Long-term mean utilizes only the years of comparable data (adjusted for visibility bias).

The total duck breeding population in southern Saskatchewan was 3.9 million, down 5% from the 4.1 million estimated in 1988. Dabblers and divers were each 5% lower than in 1988 and remain 40 and 36% below the 10-year mean. Mallards and pintails increased by 8 and 138%, but remain 41 and 53% below the 10-year mean (Table 79).

July ponds (866,500) in southern Saskatchewan increased by 4% from the 747,000 recorded in 1988, but remain 39% below the 10-year mean and 47% below the long-term (1955-88) average. Loss of ponds between May and July was 47% which is favourable compared to the normal loss of 60%. This is reflective of the above normal summer precipitation experienced in several areas of the province (Table 80; Fig. 27).

The 1989 duck brood index (58.4) for southern Saskatchewan decreased by 21% from 1988 (74.3), and remains 35 and 57% below the 10-year mean and the long-term (1955-88) average. The late-nesting index (all duck species), which is intended to be an estimate of broods expected to hatch after the July survey, was up 3% from 1988 and remains 72 and 81% below the 10-year mean and long-term (1955-88) average, respectively (Table 81).

Even though restrictive regulations have been in effect since 1985, duck populations continue to decrease and the Saskatchewan resource, particularly mallards, pintails and canvasbacks are in serious jeopardy. Past restrictive harvest strategies have not been sufficient to compensate for the current drought and severe degradation of upland nesting habitat.

Recognizing the current status of the waterfowl resource and its habitats, the poor prognosis for brood production in 1989, and the expectations of the hunting public, further restrictive bag limits will be implemented this fall. The duck bag limit for the 1989 hunting season will be five daily (three only may be mallards, one only may be pintail and one only may be canvasback). The possession limit will be twice the daily limit. This represents a decrease of four pintail and four canvasback from last year. Although these restrictive regulations reflect the seriousness of the situation, duck hunters are also expected to show restraint and select for drakes whenever possible.

C. 1989 DUCK SEASONS

Consultations regarding 1989 duck hunting regulations are being held with CWS, the primary waterfowl regulatory authority. The Saskatchewan Waterfowl Technical Advisory Committee is recommending continued restrictive regulations. Justification for restrictions includes:

Table 79. Status of waterfowl breeding population estimates by species and stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean (estimates in thousands)[a].

Species	Stratum (1987)						1989	1988	10-year	Long-term		10-year	Long-term
	30	31	32	33	34	35	Total	Total	Mean	Mean	1988	Mean	Mean
Ducks													
Dabbler													
Mallard	253.6	257.6	227.6	47.8	93.0	66.1	945.5	878.7	1,596.2	2,326.6	+8	-41	-59
American Black Duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	–	-100	-100
Gadwall	104.8	92.1	126.9	17.5	27.5	13.8	382.6	313.6	523.4	507.8	+22	-27	-25
American Wigeon	149.6	78.8	150.9	32.8	9.0	3.4	424.5	618.2	558.5	701.8	-31	-24	-40
Green-winged Teal	47.3	44.4	22.1	0.0	46.1	55.6	215.5	397.6	284.4	299.1	-46	-24	-28
Blue-winged Teal	161.9	124.7	190.6	15.2	42.4	52.8	587.6	535.5	997.1	1,430.0	+10	-41	-59
Northern Shoveler	74.1	48.3	98.5	11.6	7.5	10.8	250.8	424.5	581.8	610.1	-41	-57	-59
Northern Pintail	30.7	40.8	184.2	73.5	6.4	13.7	349.3	146.9	735.5	1,443.2	+138	-53	-76
Sub-total	822.0	686.6	1,000.9	198.4	231.8	216.1	3,155.8	3,315.0	5,277.3	7,318.8	-5	-40	-57
Divers													
Redhead	108.5	26.2	30.3	7.0	7.0	4.4	183.4	234.8	198.4	235.8	-22	-22	-8
Canvasback	52.0	29.4	10.0	2.5	4.5	7.7	106.1	150.3	175.4	182.6	-29	-40	-42
Scaups	187.1	90.5	29.3	3.8	2.1	3.9	316.7	271.6	527.6	453.7	+17	-40	-30
Ring-necked Duck	7.6	1.2	0.0	0.0	1.3	0.0	10.1	35.7	42.9	28.4	-72	-76	-64
Goldeneyes	10.7	11.3	0.0	0.0	0.0	0.8	22.7	4.8	23.8	19.1	+374	-5	+19
Bufflehead	15.7	7.1	0.4	0.0	3.0	3.5	29.7	27.6	41.3	32.0	+8	-28	-7
Ruddy Duck	20.1	32.0	11.5	0.0	26.7	0.0	90.3	80.0	137.3	117.2	+13	-34	-23
Sub-total	401.8	197.6	81.4	13.3	44.7	20.2	759.0	804.8	1,184.1	1,031.4	-5	-36	-26
Miscellaneous													
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	–	–
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	–	–
Scoters	1.3	1.5	0.0	0.0	0.0	0.0	2.8	2.6	3.9	4.9	+7	-29	-43
Mergansers	1.0	0.0	0.5	0.5	0.3	0.0	2.3	3.7	4.8	2.7	-38	-52	-15
Sub-total	2.2	1.5	0.5	0.5	0.3	0.0	5.1	6.3	7.6	8.7	-19	-42	-33
Total Ducks	1,226.0	885.7	1,082.8	212.3	276.8	236.3	3,919.9	4,126.1	6,470.1	8,357.8	-5	-39	-53
Canada Goose	5.5	27.2	10.3	4.5	8.3	2.7	58.6	0.0	0.0	0.0	–	–	–
American Coot	248.9	31.4	50.1	11.2	9.5	24.5	375.6	951.1	630.5	679.3	-61	-40	-45

[a]Adjusted for visibility.

Table 80. Long-term trend in July pond indices by stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean, and comparison of May with July ponds in 1989 (estimates in thousands)[a].

Year		Stratum						Total
		30	31	32	33	34	35	
1955		138.6	332.1	374.5	120.5	668.5	449.0	2,083.2
1956		120.9	186.8	210.1	34.8	346.5	216.2	1,115.3
1957		59.0	136.8	127.6	18.9	260.8	77.4	680.5
1958		57.0	82.8	69.1	18.4	127.9	46.1	401.3
1959		40.1	95.9	123.0	31.5	155.6	74.1	520.2
1960		47.3	104.0	136.8	16.9	229.7	102.5	637.2
1961		41.0	35.6	51.1	10.3	32.8	22.4	193.2
1962		29.9	40.0	62.6	12.4	–	–	–[b]
1963		93.0	97.2	227.8	41.6	177.5	89.4	726.5
1964		33.5	82.5	99.2	13.1	141.9	144.3	514.5
1965		112.4	188.7	289.1	88.7	267.5	69.5	915.9
1966		149.0	320.8	239.9	72.9	164.3	105.2	1,052.1
1967		86.4	136.5	192.6	44.6	101.1	50.2	611.6
1968		66.3	96.2	88.5	15.9	41.1	20.2	328.2
1969		125.4	151.8	357.0	63.0	86.6	159.2	943.1
1970		278.3	365.8	568.2	70.1	219.3	209.6	1,711.4
1971		159.1	277.6	335.9	41.9	171.7	91.6	1,077.7
1972		116.5	189.7	154.8	25.2	108.0	107.4	701.6
1973		153.1	442.7	145.3	21.7	103.5	52.4	918.6
1974		262.5	309.9	455.3	57.5	252.5	175.0	1,512.7
1975		216.7	299.6	391.1	69.1	282.5	281.9	1,540.8
1976		165.1	254.5	414.2	55.2	266.7	211.5	1,367.3
1977		101.6	187.4	183.0	19.9	154.1	72.2	718.1
1978		82.1	177.8	240.1	50.4	165.3	135.7	851.4
1979		159.6	230.8	274.2	46.9	169.2	155.8	1,036.4
1980		77.3	109.8	90.3	21.9	63.0	32.7	395.1
1981		75.7	87.0	96.3	22.9	52.2	29.6	363.7
1982		130.9	197.1	372.5	122.0	86.0	55.4	963.9
1983		134.8	313.9	237.5	44.1	366.3	99.1	1,195.7
1984		126.8	218.8	140.1	21.7	103.4	41.9	652.6
1985		186.2	292.9	173.8	20.9	177.5	55.8	907.1
1986		188.0	218.8	170.0	36.3	171.3	90.0	874.3
1987		126.8	183.3	123.6	27.7	115.1	63.0	639.6
1988		120.4	126.5	94.1	36.6	41.3	23.4	442.2
1989		101.2	108.4	129.6	36.3	51.6	31.9	459.0
10-year mean		132.6	197.9	177.2	40.1	134.5	64.7	747.0
Long-term mean		119.4	193.3	215.0	41.6	177.9	109.4	866.5
Percent change:	1989 from 1988	-16	-14	+38	-1	+25	+36	-4
	1989 from 10-year mean	-24	-45	-27	-9	-62	-51	-39
	1989 from the long-term mean	-15	-44	-40	-13	-71	-71	-47
May ponds 1989 (adjusted)		208.1	220.6	222.9	71.1	64.5	73.7	860.9
Percent change:	May to July 1989	-51	-51	-42	-49	-20	-57	-47

[a] July ponds are unadjusted for visibility bias.
[b] Incomplete coverage.

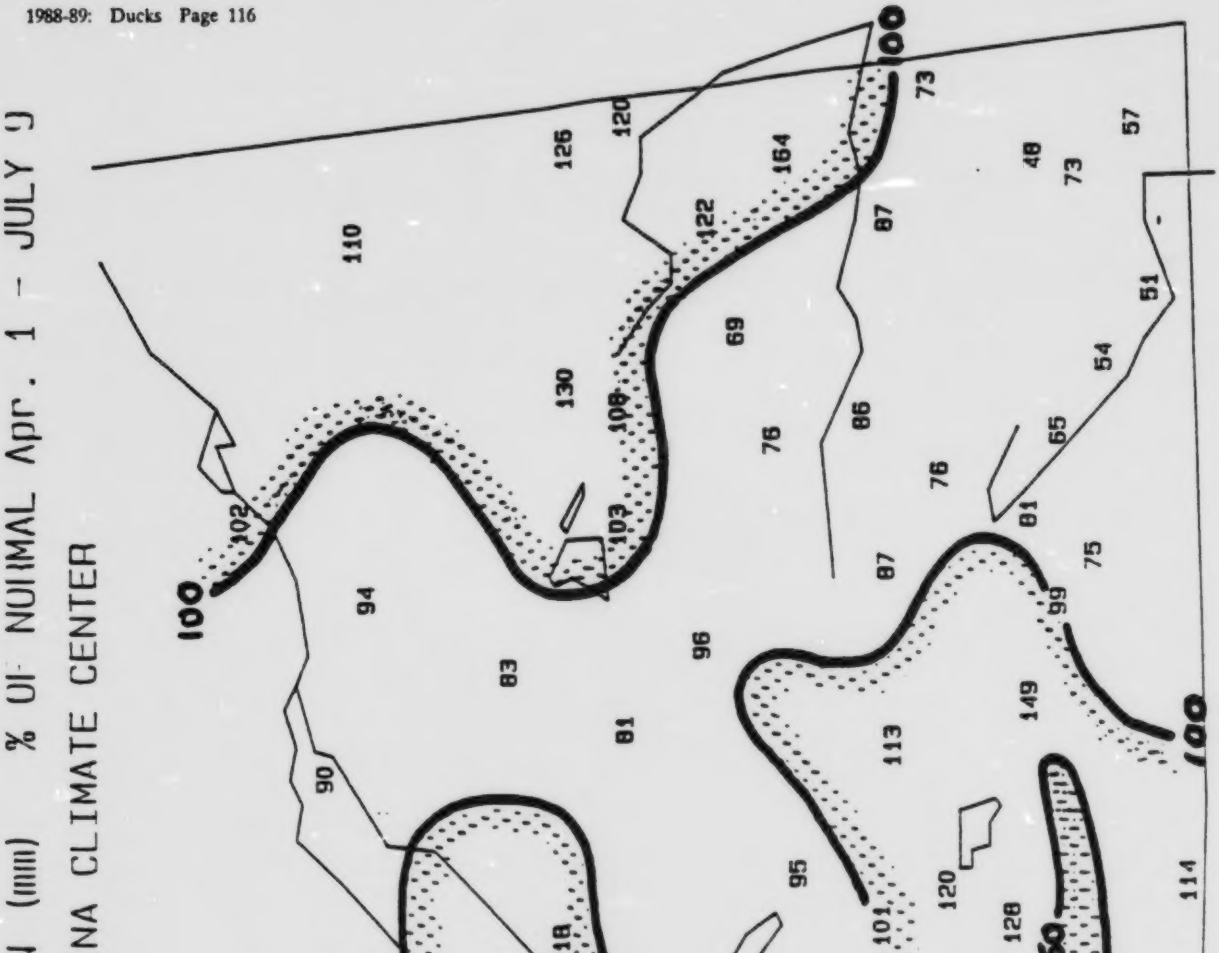

PRECIPITATION (mm) % OF NORMAL Apr. 1 - JULY 9
REGINA CLIMATE CENTER
100
102
94
110
126
120
130
108
103
122
164
100
73
69
76
86
87
48
73
57
51
54
65
76
81
87
96
83
81
75
99
149
113
100
90
95
120
114
118
99
100
101
128
150
164
120
112
83
71
100
130
135
113
92
93
56
64
58
101
80
97
100
96

Fig. 27. Average precipitation (mm) for southern Saskatchewan (April 1 to July 9).

Table 81. Status of waterfowl breeding population estimates by species and stratum in southern Saskatchewan, comparing 1989 with 1988, the 1979 to 1988 previous 10-year mean, and the 1955 to 1988 long-term mean (estimates in thousands)[a].

Species	Stratum (1989) 30	31	32	33	34	35	1989 Total	1988 Total	10-year Mean	Long-term Mean	Percent change from 1988	10-year Mean	Long-term Mean
Broods													
Duck brood index	18.7	13.2	12.6	.0	9.8	4.2	58.4	74.3	89.5	135.6	-21	-35	-57
Average brood size[b]	4.6	4.4	4.2	--	5.0	6.1	4.7	4.6	4.9	5.2	+2	-4	-10
Coot brood index	4.9	.9	.7	.0	.0	.0	6.4	11.6	28.9	29.1	-45	-78	-78
Late-nesting index[c]													
Ducks													
Dabblers													
Mallard	.7	.9	2.7	.5	2.1	2.0	8.9	5.4	21.2	29.2	+65	-58	-70
Am. black duck	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	NC[d]	NC	NC
Gadwall	.5	.0	1.1	.0	.1	.1	1.8	.1	7.1	9.4	+1,700	-75	-81
Am. wigeon	.5	.0	.3	.0	.0	.0	.7	1.5	2.8	5.0	-53	-75	-86
Am. green-winged teal	.0	.0	.0	.0	.4	.0	.4	.8	2.6	2.8	-50	-85	-86
Blue-winged teal[e]	.5	.6	.8	.0	.0	.3	2.2	4.6	10.3	12.4	-52	-79	-82
Shoveler	.0	.0	.0	.0	.0	.1	.1	.7	2.2	4.0	-86	-95	-97
Pintail	.2	.0	.1	.0	.0	.0	.4	1.5	3.6	8.2	-73	-89	-95
Sub-total	2.4	1.5	4.9	.5	2.7	2.6	14.6	14.5	49.9	71.1	+1	-71	-79
Divers													
Redhead	.0	.0	.0	.0	.0	.0	.0	.2	2.0	2.5	-100	-100	-100
Canvasback	.0	.0	.0	.0	.0	.0	.0	.0	.9	1.5	NC	-100	-100
Scaups	.2	.3	.1	.3	.0	.4	1.4	.6	8.1	7.5	+133	-83	-81
Ring-necked duck	.0	.0	.0	.0	.0	.0	.0	.8	.9	.7	-100	-100	-100
Goldeneyes	.0	.0	.0	.0	.0	.0	.0	.0	.2	.2	NC	-100	-100
Bufflehead	.0	.0	.0	.0	.0	.0	.0	.5	.5	.6	-100	-100	-100
Ruddy duck	1.0	.3	.5	.0	.0	.1	1.9	1.5	5.8	5.9	+27	-67	-68
Sub-total	1.2	.6	.7	.3	.0	.6	3.4	3.6	18.3	18.8	-6	-81	-82
Miscellaneous													
Oldsquaw	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	NC	NC	NC
Eiders	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	NC	NC	NC
Scoters	.0	.0	.0	.0	.0	.0	.0	.0	.2	.3	NC	-100	-100
Mergansers	.0	.0	.0	.0	.0	.0	.0	.0	.1	1.0	NC	-100	-100
Sub-total	.0	.0	.0	.0	.0	.0	.0	.0	.2	1.2	NC	-100	-100
Unidentified	2.9	2.0	5.2	1.8	.0	.0	11.9	10.9	37.6	68.0	+9	-68	-82
Total Ducks	6.6	4.1	10.7	2.5	2.7	3.2	29.8	28.9	106.0	159.1	+3	-72	-81

[a] Unadjusted for visibility bias.
[b] From complete class II and III broods observed.
[c] As indicated by observed adult pairs and singles.
[d] NC - no change.
[e] Includes cinnamon teel.

1. Mallard and total duck breeding populations remain far below desired levels,
2. Agricultural practices continue to severely impact waterfowl breeding habitat,
3. Fall flights continue to be low.
4. Waterfowl nesting success continues to be low.

Season dates and bag limits will not be finalized until spring breeding surveys by CWS and USFWS are completed. With the exception of more restrictive pintail and canvasback bag limits, SPRC is recommending that season dates (calendar adjustments, only) and bag limits remain the same as 1988. The daily bag for pintail and canvasback will be limited to one bird for each species with two in possession.

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Ducks (All Hunters)	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units; and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 11 - Dec. 9	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintail and 2 only may be canvasback)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac la Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintail and 2 only may be canvasback)

GEESE

A. REVIEW OF 1988 HUNTING SEASON

The total Saskatchewan goose harvest (all species) increased by 4% from 133,052 in 1987 to 138,864 in 1988, 16% below the 10-year average (Table 82; Fig. 28). Canada geese (82,220) comprised 59% of the harvest followed by white-fronted (29,533), lesser snow (24,345) and Ross' (2,766) geese each contributing 21%, 18%, and 2%, respectively of the total harvest (Table 83). The majority of the goose harvest occurred between September 21 and October 26 (Fig. 29).

Table 82. Estimated harvest of geese in Saskatchewan by federal harvest zone, 1978 to 1988 (after SPRC and CWS, Ottawa).

Year	Federal Estimates				Provincial Estimates
	Zone 1	Zone 2	Zone 3	Total[a]	
1978	72,519	16,517	49,481	138,517	146,648
1979	80,784	22,553	49,097	152,434	163,829
1980	102,439	18,008	50,942	171,389	184,786
1981	76,624	19,544	45,220	141,388	158,644
1982	79,548	24,040	47,408	150,996	155,188
1983	114,289	23,972	71,874	210,135	213,026
1984	88,833	20,938	60,386	170,158	162,219
1985	88,958	19,357	57,333	165,648	176,362
1986	72,661	21,885	58,813	153,359	159,111
1987	82,907	32,876	54,449	170,232	133,052
1978-87 Average	85,956	21,969	54,500	162,425	165,287
1988	57,777	24,449	43,171	125,398	138,864
% Change					
1988 from 1987	-30%	-26%	-21%	-26%	+4%
1988 from Average	-33%	+11%	-21%	-23%	-16%

[a] Total includes Zones 1, 2 and 3.

B. POPULATION STATUS

Populations of large Canada geese continue to thrive in agricultural Saskatchewan. Field researchers report that the Western Prairie and Great Plains populations have been increasing in recent years (1980-84), while the Hi-line population has remained stable at approximately 93,000 birds. These prairie-nesting geese have caused an increasing number of spring and summer grazing complaints. Snow geese populations continue to expand and Saskatchewan sportsmen have been encouraged to harvest more of these geese.

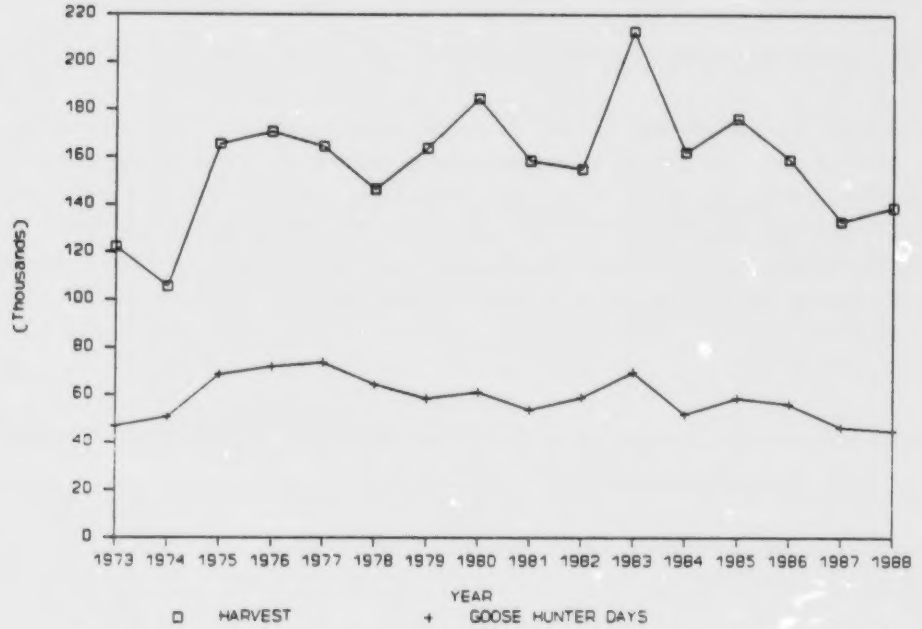


Fig. 28. Saskatchewan goose hunter days and harvest, 1973 to 1988.

Table 83. Goose harvest in Saskatchewan, 1982 to 1988.

Year	Species				Totals
	Canada	White-fronted	Lesser Snow	Ross'	
1982	83,188	41,644	25,683	4,672	155,188
1983	122,377	43,001	42,832	4,816	213,026
1984	85,758	40,405	31,469	4,358	161,990
1985	95,257	38,710	38,297	4,097	176,361
1986	85,642	35,600	34,842	3,027	159,111
1987	78,343	27,732	24,765	2,213	133,052
1982-87 Average	91,760	37,847	32,981	3,864	166,452
1988	82,220	29,533	24,345	2,766	138,864
% Change					
1988 from 1987	+5%	+7%	-2%	+25%	+4%
1988 from 1982-87 Average	-10%	-22%	-26%	-28%	-17%

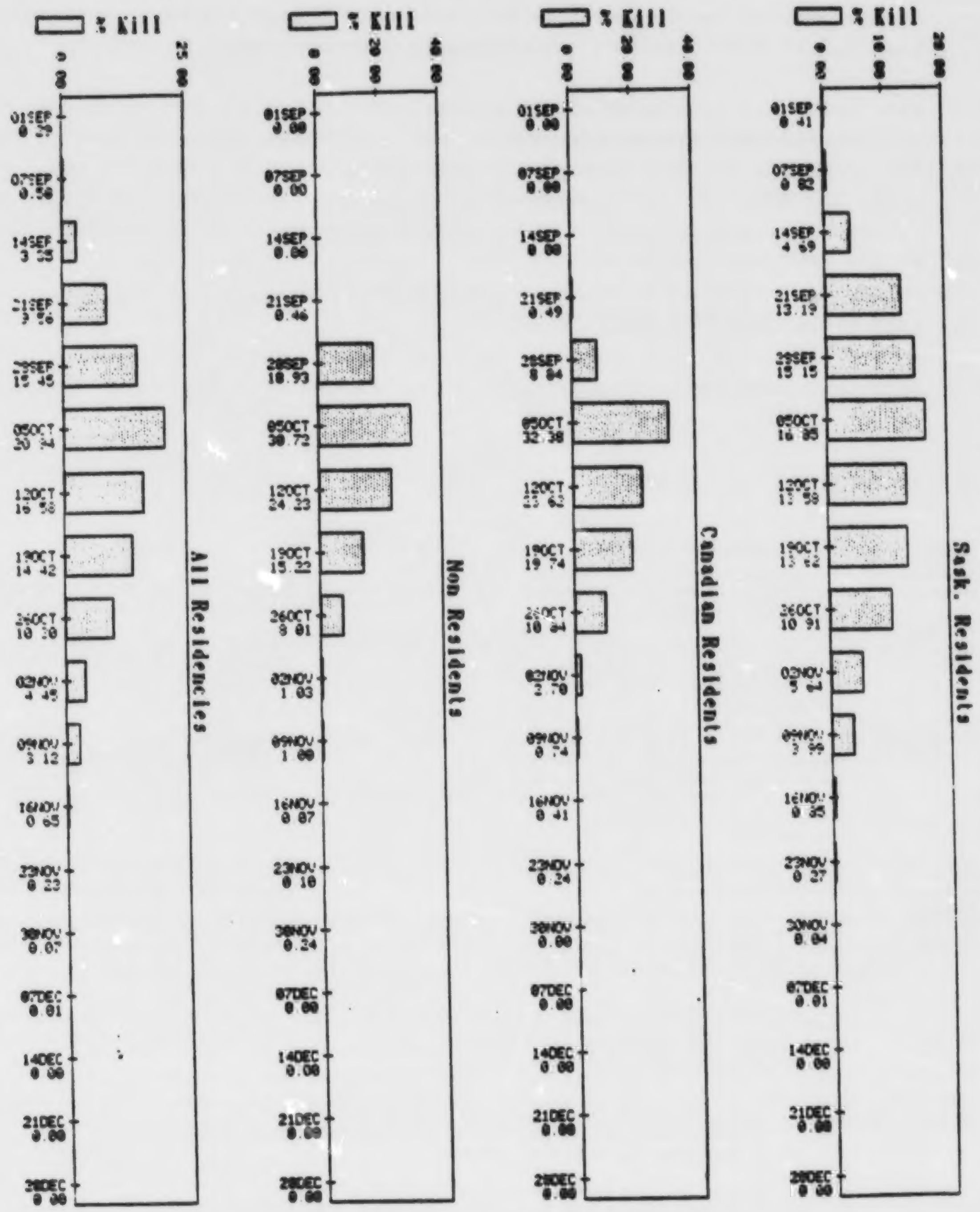


Fig. 29. Saskatchewan 1988 goose harvest by residency and weekly interval.

The mid-continent white-fronted goose population is divided into a western segment (WM-C) and an eastern segment (EM-C). The EM-C subpopulation is stable, but the WM-C segment is well below the triggering level outlined in the Central Flyway White-fronted Goose Management Plan.

The USFWS has expressed concern over the status of the WM-C and has recommended that the Central and Mississippi Flyway Councils examine this situation and develop appropriate regulatory actions. Saskatchewan is a major harvester of white-fronted geese. If restrictive regulations are recommended, Saskatchewan will be under extreme pressure to reduce harvest of the WM-C subpopulation.

C. 1989 MANAGEMENT OBJECTIVES

With the exception of calendar adjustments goose season dates and bag limits remain the same as 1988.

D. 1989 GOOSE SEASONS

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Geese (Sask. Residents Geese Only)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 20 - Dec. 9	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 42, 44 to 47 and 52, including Valeport and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 13 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac la Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
Geese (Canadian Residents and Non-residents)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 27 - Dec. 9	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 52, 56 and 57, including Valeport, Last Mountain Lake, Horsehide Lake and Fort a la Corne Wildlife Management Units	Sept. 27 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 53, 55 and 58 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac la Ronge Provincial Parks; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)

All hunters please note: Starting Sept. 27 in Zones 15 to 18, 20 to 22, 30 to 43 and 48 to 76: 3 additional snow or Ross' geese may be taken daily, and 6 additional snow or Ross' geese may be kept in possession.

Starting Oct. 14 in Zones 1 to 14, 19, 23 to 29 and 44 to 47: 3 additional snow or Ross' geese may be taken daily, and 6 additional snow or Ross' geese may be kept in possession.

Prior to Oct. 22, in Zones 1 to 59, 67, 68 and 69, any open season for geese includes that portion of the day from one-half hour before sunrise to 12:00 noon local time. From Oct. 23 to Dec. 9, geese may be hunted all day in all open zones.

SANDHILL CRANES

A. REVIEW OF 1988 HUNTING SEASON

Sandhill crane harvest in Saskatchewan was traditionally small until 1985 when 6,200 birds were taken which was nearly double the harvest of previous years. The crane harvest in 1988 was 5,183 birds, an increase of 9% from 1987 and 12% from the 9-year average (Table 84).

Table 84. Estimated retrieved kill of sandhill cranes in Saskatchewan, 1979 to 1988 (federal estimates after Progress Note 126 and interim data via L. Metras, CWS Ottawa; Provincial estimates after SPRC).

Year	Sandhill Crane Harvest	
	Federal Estimate	Provincial Estimate
1979	2,821	7,052
1980	4,690	4,230
1981	2,452	2,221
1982	2,040	3,478
1983	2,720	2,965
1984	3,043	3,110
1985	4,468	6,200
1986	4,455	7,480
1987	4,522	4,774
1979-87 Average	3,468	4,612
1988	N/A[a]	5,183
% Change		
1988 from 1987	—	+9%
1988 from 1979-87 Average	—	+12%

[a] N/A - not available.

B. POPULATION STATUS

Spring population data from the Co-ordinated Spring Mid-Continent Sandhill Crane Survey indicate a stable population in the Central Flyway. It does not appear that present harvest regulations are having an adverse effect on the status of these birds.

There have been recent requests for a crane season in the forest fringe area of east-central Saskatchewan. Distribution and abundance of Sandhill cranes in this area will be investigated during fall, 1989. Depending on results of these surveys, consideration may be given to an expanded crane season in 1990.

C. 1989 MANAGEMENT OBJECTIVES

Because the inclusion of sandhill cranes on Appendix II of the CITES treaty, cranes continue to pose a problem for non-resident alien hunting. The 1989 season will continue to be restricted to residents of Canada.

D. 1989 SANDHILL CRANE SEASONS

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Sandhill Cranes (Sask. Residents and Canadian Residents Only)	Zones 19, 21 to 24, 29, 30, 37 to 42, 44 and 52	Sept. 1 - Sept. 12	5 daily 10 possession
	Zones 11 to 14	Sept. 11 - Sept. 19	5 daily 10 possession

UPLAND GAME BIRDS

A. REVIEW OF 1988 HUNTING SEASON

During 1988, upland game bird hunting activity increased by approximately 4% relative to 1987 estimates, but remained below (14.5%) the 1973 to 1987 average (Table 85; Fig. 30). The 12% decline in bird licence sales apparent in 1987 continued in 1988 with a further reduction of 11% (Table 1 and 73). These trends occurred despite the excellent hunting opportunity available in the fall of 1987 and the prediction of even better upland game bird populations following the mild winter of 1987-88.

Past Game Management Reports have described the strong relationship between duck hunting activity and upland bird hunting activity. This relationship continues to persist and was reflected in 1988 licence sale statistics (Tables 1 and 2). However, upland bird hunting as a distinct activity has increased in recent years and growing numbers of hunters pursue upland birds independent of duck hunting opportunity. In 1988, only 12,900 duck hunters were active compared to 25,800 active upland bird hunters (Tables 77 and 85).

During 1988, upland bird hunters spent 16% less time in the field than in 1987, but hunter effort remained 32% above long-term average levels (Table 85). Recreation days declined by 13% from the 1987 estimate of 83,200 hunter days to 72,100 hunter days in 1988. The greatest decline in recreation occurred in pheasant hunting effort which decreased by 28% relative to 1987. Sharp-tailed grouse, Hungarian partridge and ptarmigan hunting effort also declined by 25%, 21% and 4%, respectively. In contrast, ruffed grouse and spruce grouse hunting recreation increased by 15% and 6%, respectively.

An estimated 87% of active upland bird hunters were successful in bagging one or more birds and each successful hunter harvested an average of 10.9 upland birds (Table 86). Although non-residents of Canada constitute only 9% of Saskatchewan upland bird hunters, they consistently spend more time hunting (3.6 days/active hunter) than do Saskatchewan or Canadian resident hunters (2.7 and 2.3 days/active hunter, respectively). This higher effort, despite a shorter available time period to hunt, returns greater success and harvest per hunter (Table 86; Fig. 31).

Although hunting pressure declined in the Farmlands (WMZ 15-30) during 1988, this ecozone continues to receive the heaviest hunting pressure (Table 87) and supported 32% of total upland hunter days. WMZ 15 experienced the greatest pressure (30%) of all Farmland WMZ and supported 10% of the provincial upland bird hunting effort at 6,900 hunter days. Hunter days

Table 85. Saskatchewan upland game bird hunting activity, 1973 to 1988.

Year	Active Upland Bird Hunters	Upland Bird Hunter Days	Hunter Days/ Active Hunter
1973	28,500	53,275	1.9
1974	21,857	37,801	1.7
1975	27,812	48,161	1.7
1976	39,035	86,525	2.2
1977	41,772	93,496	2.2
1978	36,766	72,378	2.0
1979	36,373	72,096	2.0
1980	36,786	75,578	2.1
1981	32,147	68,988	2.1
1982	26,884	50,382	1.9
1983[a]	28,266	60,146	2.1
1984	22,334	44,854	2.0
1985	20,777	40,149	1.9
1986	28,849	74,900	2.6
1987	24,918	83,179	3.3
1973-1987 Average	30,205	64,127	2.1
1988	25,822	72,059	2.8
% Change			
1988 from 1987	+3.6%	-13.4%	-16.4%
1988 from Average	-14.5%	+12.4%	+31.5%

[a] Statistics from 1983 to present includes pheasant hunter activities.

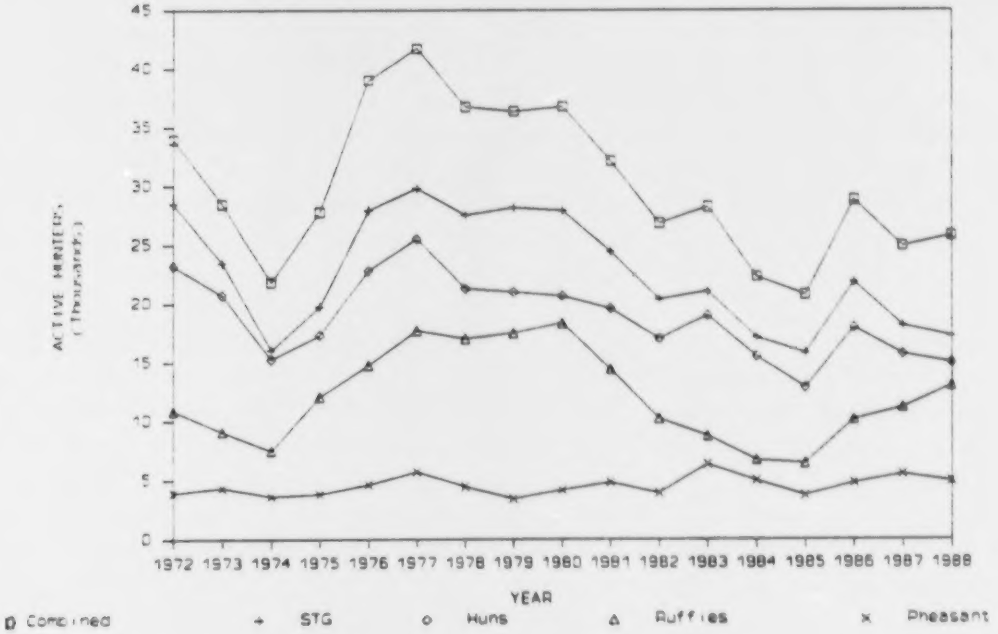


Fig. 30. Active upland game bird hunters in Saskatchewan, 1972 to 1988.

Table 86. Saskatchewan upland game bird harvest summary, 1988.

	Sask. Resident		Non-resident, Cdn.		Non-resident, Alien		All Hunters	
SHARP-TAILED GROUSE	43,278	83.66%	2,344	4.53%	6,104	11.79%	51,725	100.0%
Successful Hunters (% of Active)	10,389	(68.82%)	498	(71.81%)	1,209	(83.22%)	12,096	(70.16%)
Active Hunters	15,095		693		1,453		17,240	
Kill/Active Hunter	2.9		3.4		4.2		3.0	
Kill/Successful Hunter	4.2		4.7		5.0		4.3	
Days/Active Hunter	1.1		1.3		1.9		1.1	
Days/Successful Hunter	1.6		1.8		2.2		1.6	
Days Hunted	16,184.1		900.9		2,710.5		19,795.5	
HUNGARIAN PARTRIDGE	63,112	80.27%	4,208	5.35%	11,300	14.37%	78,621	100.0%
Successful Hunters (% of Active)	9,681	(74.51%)	510	(73.63%)	1,151	(90.07%)	11,342	(75.80%)
Active Hunters	12,992		693		1,277		14,962	
Kill/Active Hunter	4.9		6.1		8.8		5.3	
Kill/Successful Hunter	6.5		8.2		9.8		6.9	
Days/Active Hunter	1.4		1.4		2.2		1.4	
Days/Successful Hunter	1.8		1.8		2.4		1.9	
Days Hunted	17,613.7		938.7		2,759.3		21,311.7	
RUFFED GROUSE	82,891	95.20%	1,014	1.16%	3,159	3.62%	87,065	100.00%
Successful Hunters (% of Active)	10,382	(85.14%)	158	(67.56%)	517	(88.33%)	11,056	(84.97%)
Active Hunters	12,194		233		585		13,012	
Kill/Active Hunter	6.8		4.4		5.4		6.7	
Kill/Successful Hunter	8.0		6.4		6.1		7.9	
Days/Active Hunter	1.7		1.2		1.6		1.7	
Days/Successful Hunter	2.0		1.8		1.8		2.0	
Days Hunted	20,459.1		283.5		945.8		21,688.4	
SPRUCE GROUSE	14,470	94.37%	82	0.53%	780	5.08%	15,332	100.00%
Successful Hunters (% of Active)	2,533	(74.64%)	25	(66.66%)	127	(81.25%)	2,685	(74.84%)
Active Hunters	3,394		38		156		3,587	
Kill/Active Hunter	4.3		2.2		5.0		4.3	
Kill/Successful Hunter	5.7		3.3		6.2		5.7	
Days/Active Hunter	1.1		0.5		1.6		1.1	
Days/Successful Hunter	1.5		0.8		1.9		1.5	
Days Hunted	3,803.1		18.9		243.8		4,065.8	
PHEASANT	11,160	100.00%	0	0.00%	0	0.00%	11,160	100.00%
Successful Hunters (% of Active)	3,088	(62.50%)	0	(0.00%)	0	(0.00%)	3,088	(62.50%)
Active Hunters	4,941		0		0		4,941	
Kill/Active Hunter	2.3		0.0		0.0		2.3	
Kill/Successful Hunter	3.6		0.0		0.0		3.6	
Days/Active Hunter	1.0		0.0		0.0		1.0	
Days/Successful Hunter	1.7		0.0		0.0		1.7	
Days Hunted	5,170.3		0.0		0.0		5,170.3	
PTARMIGAN	153	100.00%	0	0.00%	0	0.00%	153	100.00%
Successful Hunters (% of Active)	21	(42.85%)	0	(0.00%)	0	(0.00%)	21	(42.85%)
Active Hunters	49		0		0		49	
Kill/Active Hunter	3.1		0.0		0.0		3.1	
Kill/Successful Hunter	7.3		0.0		0.0		7.3	
Days/Active Hunter	0.9		0.0		0.0		0.9	
Days/Successful Hunter	2.0		0.0		0.0		2.0	
Days Hunted	41.6		0.0		0.0		41.6	
ALL UPLAND GAME BIRDS	215,064	88.12%	7,648	3.13%	21,343	8.74%	244,055	100.00%
Successful Hunters (% of Active)	19,904	(86.38%)	743	(79.19%)	1,697	(92.06%)	22,344	(86.52%)
Active Hunters	23,041		939		1,843		25,822	
Kill/Active Hunter	9.3		8.1		11.6		9.5	
Kill/Successful Hunter	10.8		10.3		12.6		10.9	
Days/Active Hunter	2.7		2.3		3.6		2.8	
Days/Successful Hunter	3.2		2.9		3.9		3.2	
Days Hunted	63,258.1		2,142.0		6,659.3		72,059.4	

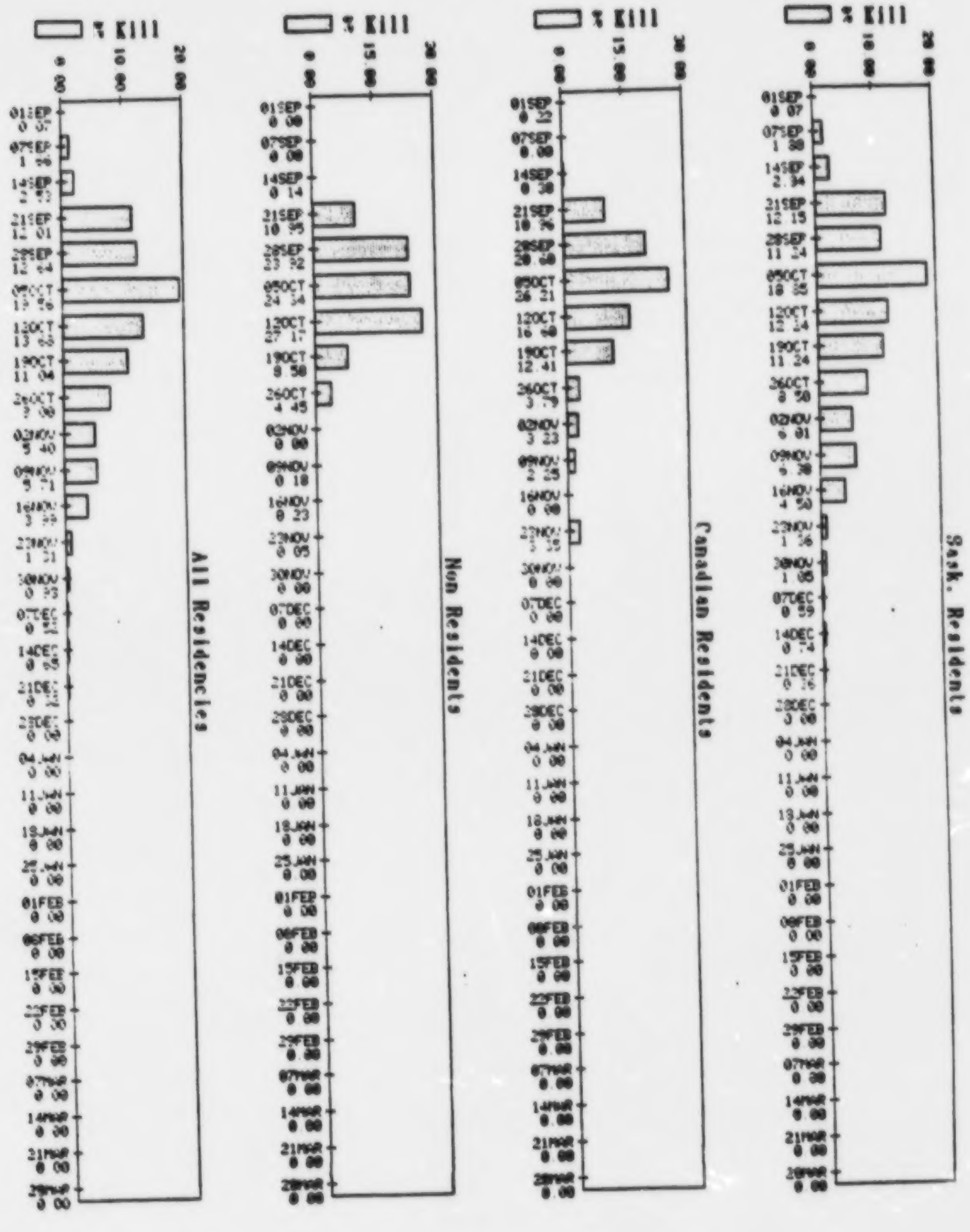


Fig. 31. Percentage of upland game bird harvest by residency and weekly interval.

Table 87. Saskatchewan upland game bird hunting activity by ecological zone, 1986 to 1988.

	Total Upland Bird Hunter Days			% of Total Days			Kill Per Day		
	1986	1987	1988	1986	1987	1988	1986	1987	1988
Grassland (64,799 km^2; 10.3%^{a})^2	16,844	21,090	13,540	22.5%	25.4%	18.8%	3.2	3.4	3.2
Farmlands (90,826 km^2; 14.5%)	32,943	31,225	23,363	44.0%	37.6%	32.4%	3.1	3.4	3.1
Parklands (98,446 km^2; 15.7%)	12,277	12,472	14,963	16.4%	15.0%	20.8%	3.0	3.1	3.1
Forest Fringe (26,262 km^2; 4.2%)	4,297	6,613	6,893	5.7%	8.0%	9.6%	3.5	4.2	3.9
Forest (165,120 km^2; 26.3%)	8,416	11,574	13,076	11.2%	13.9%	18.1%	4.0	5.0	4.1
Northern Shield (181,799 km^2; 29.0%)	56	75	170	.07%	.09%	0.24%	5.3	6.7	3.6
Provincial Total (627,252 km^2)	74,833	83,049	72,059	100%	100%	100%	3.2	3.6	3.4

[a] Area of ecozone followed by percent of provincial land mass.

dropped dramatically in the Grassland ecozone due to poor sharp-tailed grouse, Hungarian partridge and pheasant reproduction. WMZ 4 contributed the largest portion of the Grassland hunter days at 2,900 days or 22% of the ecozone total. Hunter recreation increased in the other four ecozones, largely as a result of the excellent hunting opportunity afforded by ruffed grouse populations remaining near the peak of their 10-year cycle. The individual WMZ which supported the highest hunter days in each ecozone during 1988, and respective proportion of each ecozone's total hunter effort were: Parklands - WMZ 39 (12%), Forest Fringe - WMZ 54 (22%), Forest - WMZ 67 (19%) and Northern Shield - WMZ 75 (82%).

B. POPULATION STATUS

1. Impact of 1988 Drought on Upland Bird Recruitment

Upland game birds normally require good reproductive success to maintain population levels. Since mortality on all age classes is high, annual recruitment is important to sustain populations and maintain high quality hunting opportunity.

Saskatchewan has experienced a series of mild winters with below average snowfall. Upland bird populations demonstrated excellent over-winter survival and increased in response to these conditions to such an extent that 1988 spring population surveys were at record high levels and an excellent hunting season was predicted. However, abnormally high temperatures and very dry conditions developed in the late spring and early summer. Hunters reported poor success in the fall hunting season across most of southern Saskatchewan and expressed widespread concern about the low upland bird numbers relative to the excellent conditions experienced in 1987.

Wing samples collected from successful hunters demonstrated that sharp-tailed grouse and Hungarian partridge experienced record low rates of reproduction and recruitment prior to the 1988 hunting season (Fig. 32). Although samples were not collected for pheasants, a similar effect was believed to have been evident. Wildlife managers suspect that the extremely high temperatures and low relative humidities experienced during the spring season reduced egg and/or chick survival through desiccation and the reduced food resources available to young birds. Combined with adult bird mortality, these factors are believed to be responsible for the dramatic decline in populations from the 1987 levels.

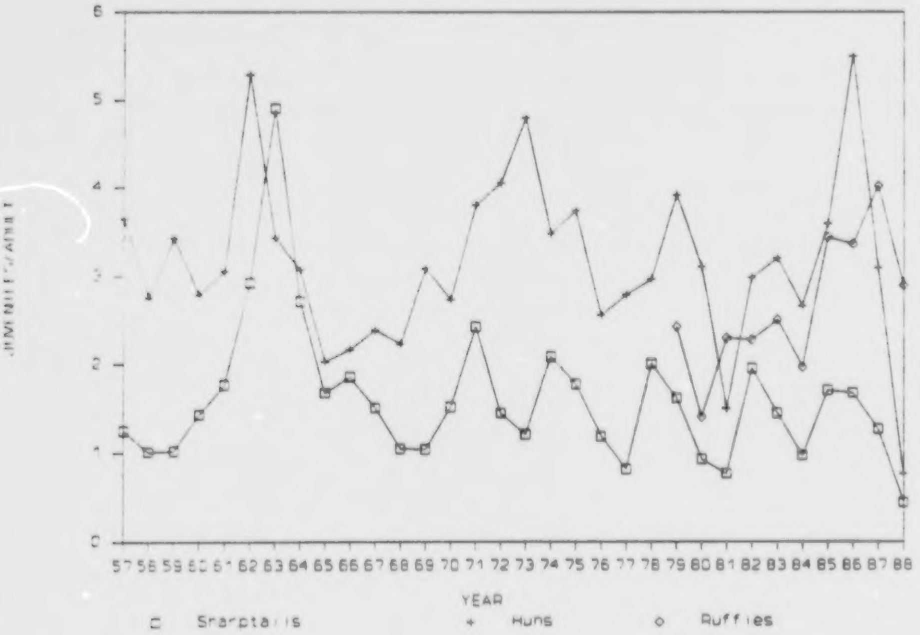


Fig. 32. Saskatchewan upland game bird fall age ratios, 1957 to 1988. Based upon wing samples collected in harvest.

Environment has a large impact on Saskatchewan upland game birds and winter is usually the most critical time for survival. However, incubation and hatching are also critically important in population stability. Sharp-tailed grouse in Saskatchewan normally begin incubation during late April and incubation peaks in the third week of May (Fig. 33) Three weeks after this peak, re-nesting or late breeding may rarely occur. Hatching dates follow a similar pattern to the incubation curve with the peak of hatch occurring in mid-June, 24 days after the peak of incubation. By July, over 60% of broods have left the nest (Fig. 33) and chicks are forging for food. Adverse environmental conditions coupled with poor habitat conditions can severely impact eggs and young at this time.

Hungarian partridge have a similar incubation period (24 days) as sharptails, but nest somewhat later. Incubation peaks during late May and the first week of June with over 65% of the hatch completed by the second week of July (Fig. 34). This species showed the greatest decline in reproduction of all Saskatchewan upland game birds and was down 75% from 1987.

Figure 35 graphically demonstrates nesting and hatch chronology in sharp-tailed grouse and Hungarian partridge, in relation to long-term average and 1988 temperatures. The extremity of 1988 temperatures relative to long-term average weather data and the co-incidence of the extreme conditions with sharptail and partridge nesting periods are easily apparent in this figure. Wildlife managers believe that these events were the principal cause for reproductive failure in these upland bird populations during 1988.

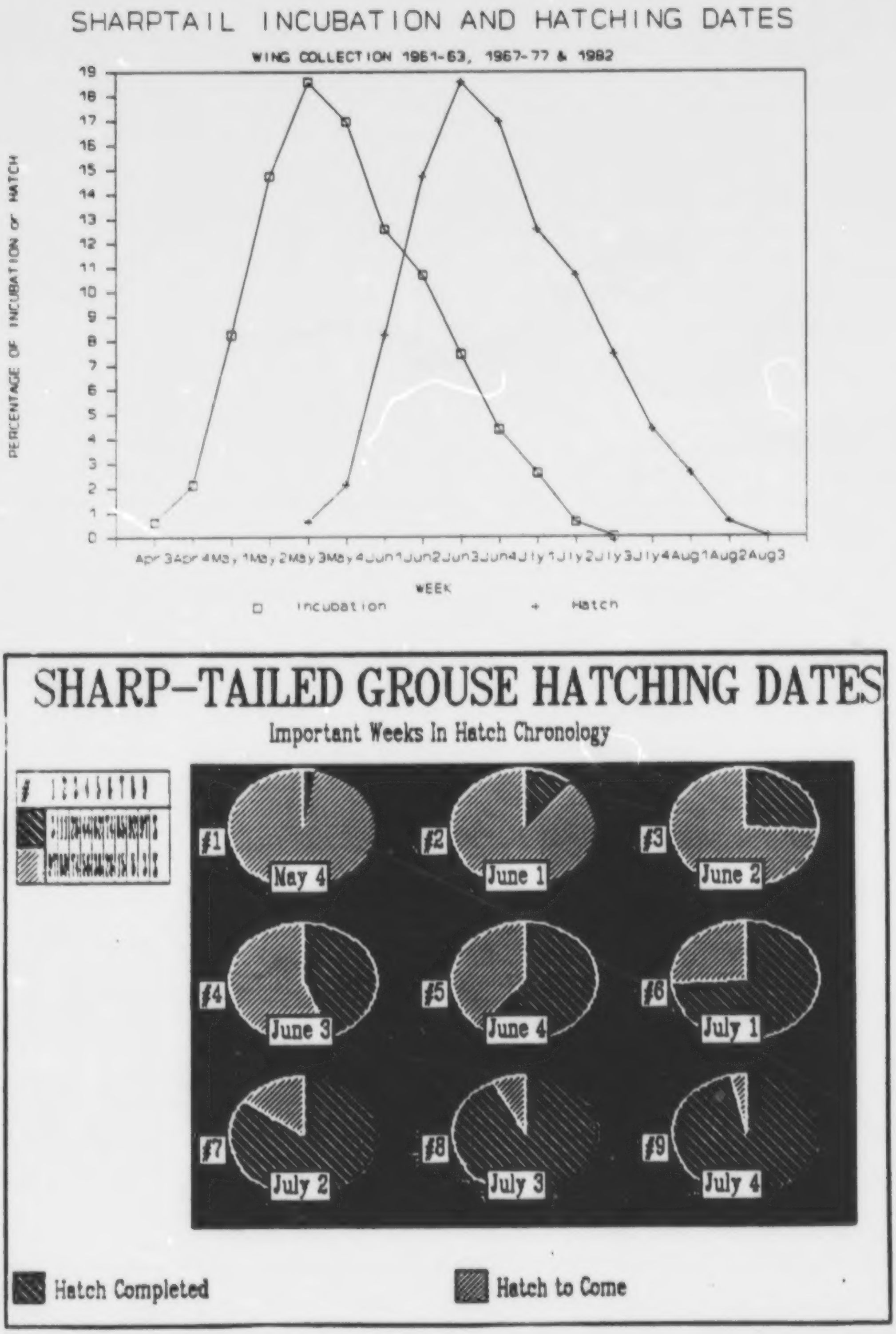
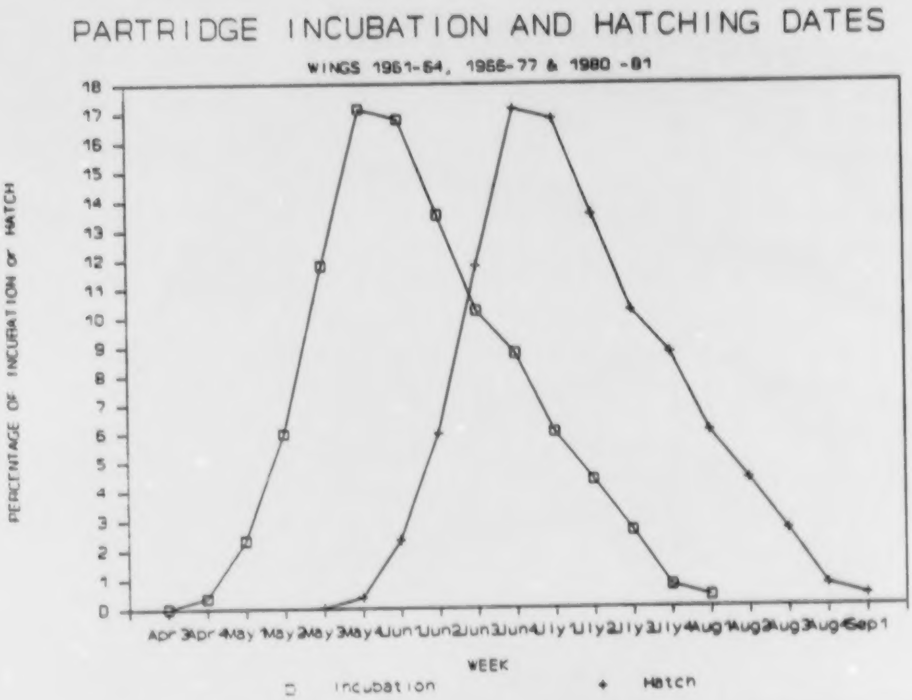


Fig. 33. Incubation and hatching chronology for sharp-tailed grouse in Saskatchewan.



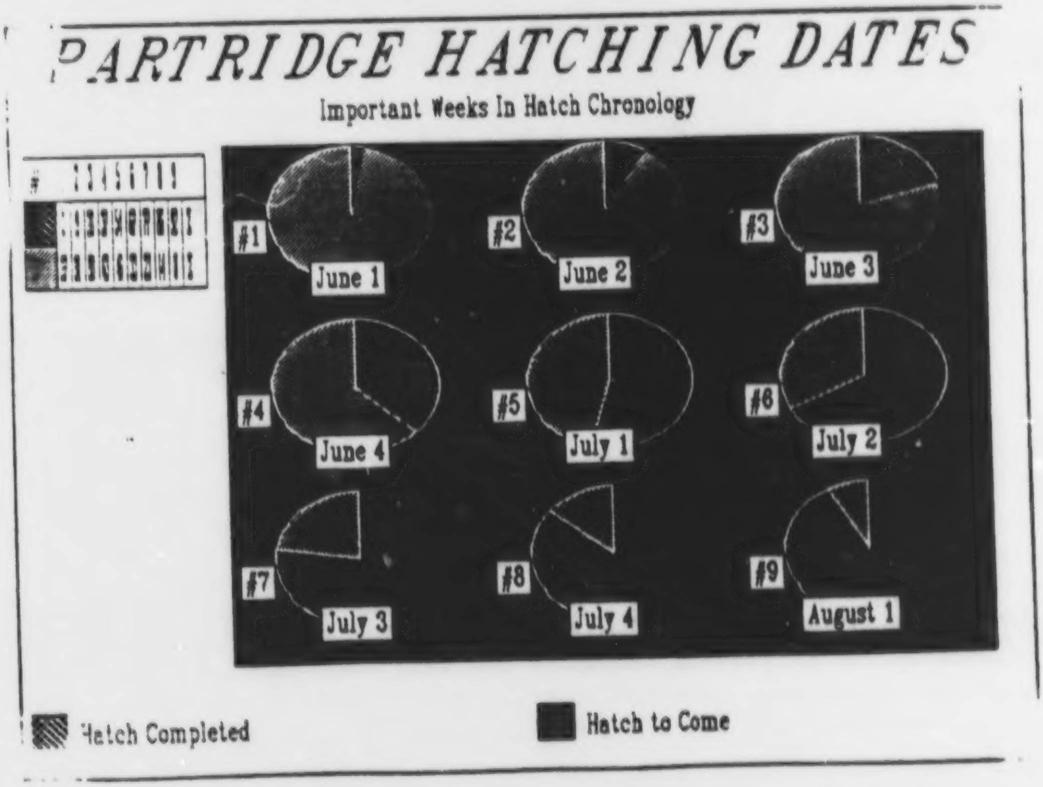


Fig. 34. Incubation and hatching chronology for Hungarian partridge in Saskatchewan.

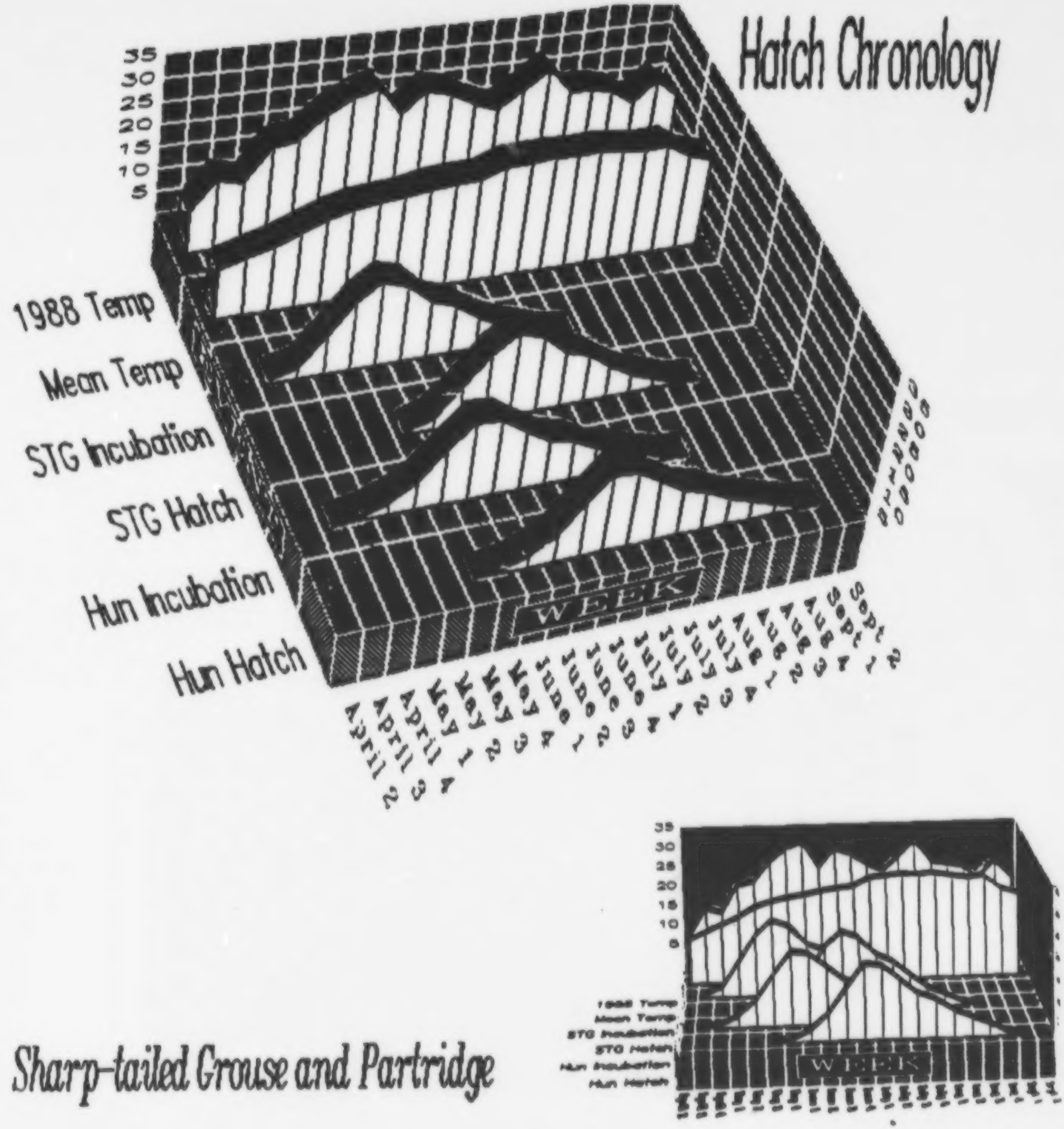


Fig. 35. Comparison of hatching periods for sharp-tailed grouse and Hungarian partridge as it relates to mean and 1988 spring temperatures. Numbered months represent weeks in the month, not specific dates.

SHARP-TAILED GROUSE

A. REVIEW OF 1988 HUNTING SEASON

The 1988 provincial sharptail harvest declined dramatically to 51,725 birds from 78,210 in 1987 and was well below the long-term average of 83,056 (Tables 88 and 89; Fig. 36). The 1988 season dates remained similar to those of past years with opening dates of September 7 in the north (WMZ 48 to 76) and September 21 in the south. The southern season ran 60 days and concluded on November 19.

Interestingly, over 50% of the provincial sharp-tailed grouse harvest occurred during the first three weeks of the season (Fig. 37) coinciding with three major events in the 1988 game bird season:

1) Opening of the Hungarian partridge, ruffed grouse and goose (in the western portion of the province) seasons on September 21.
2) Opening of the non-resident game bird seasons on September 28.
3) Opening of the pheasant season on October 5 for Saskatchewan residents, only. This week produced the single largest component of the sharptail harvest (10,066 birds) and made up 19.5% of the 1988 total kill. The four most important pheasant WMZ in 1988 (WMZ 2, 4, 5 and 15) contributed 18.3% of the entire provincial sharp-tailed grouse harvest.

Provincial harvest per active hunter dropped 30.3% to 3.0 birds from 4.3 birds estimated in 1987 (Table 88). This 1988 figure was 16.7% below the long-term average harvest rate (3.6 birds/active hunter). However, the decrease in the number of active hunters was less severe, being only 5.0% (17,240) below the 1987 figure of 18,151.

Sharptail hunting opportunity showed a more significant deterioration in the Grassland ecozone than was evident in other areas of the province (Table 88). In comparison to 1987, harvest declined by 49.2% in 1988 while recreation days decreased by 42.1%. Hunter success dropped 12.3% from 3.2 birds per hunter day to 2.8 birds per hunter day. The Farmlands, historically Saskatchewan's biggest producer of sharptails, also saw a substantial decline in harvest (46.6%), hunter success (16.4%) and hunter days (36.1%). Interestingly, the estimated numbers of active hunters per WMZ changed marginally. This may indicate that hunters in the Farmland ecozone made a greater effort to search for birds over more WMZ than in the previous year. However, the poor success reflected in the number of birds per bag most likely resulted in hunters not hunting as often than in 1987. This would account for the fewer hunter days apparent in the 1988 season.

Table 88. Sharp-tailed grouse hunting statistics by Saskatchewan ecozone for 1987 and 1988.

	Grassland			Farmland			Parkland		
	1987	1988	% Change	1987	1988	% Change	1987	1988	% Change
Harvest	20,994	10,658	-49.2	39,414	21,065	-46.6	12,091	12,746	+5.4
Percent of Provincial Harvest	26.9	20.6		50.4	40.7		15.5	24.6	
Active Hunters per WMZ[a]	6,636	5,341	-19.5	11,727	11,164	-4.8	5,374	5,834	+8.6
Hunter Days	6,661	3,857	-42.1	13,102	8,376	-36.1	4,423	4,826	+9.1
Hunter Success[b]	3.2	2.8	-12.3	3.0	2.5	-16.4	2.7	2.6	-3.4

	Forest Fringe			Forest			Province		
	1987	1988	% Change	1987	1988	% Change	1987	1988	% Change
Harvest	2,504	3,068	+22.5	3,165	4,178	+32.0	78,169	51,725	-33.8
Percent of Provincial Harvest	3.2	5.9		4.1	8.1		100.0	100.0	
Active Hunters per WMZ[a]	1,490	1,823	+22.4	1,697	2,148	+26.6	26,923	26,335	-2.2
Hunter Days	921	1,163	+26.3	1,247	1,562	+25.3	26,354	19,818	-24.8
Hunter Success[b]	2.7	2.6	-3.0	2.5	2.7	+5.4	2.9	2.6	-11.9

[a] Active hunters per WMZ represents recorded hunting activity in one or more WMZ. Example: A hunter may hunt in 3 WMZ for the same species in one season. Instead of being calculated as just one hunter per one WMZ, he is computed as one hunter per each WMZ he hunted in, being 3 separate hunters per WMZ in this example. This statistic is useful in determining the intensity of search for birds and/or the variety of species hunted which takes the hunter into different WMZ.

[b] Harvest per hunter days.

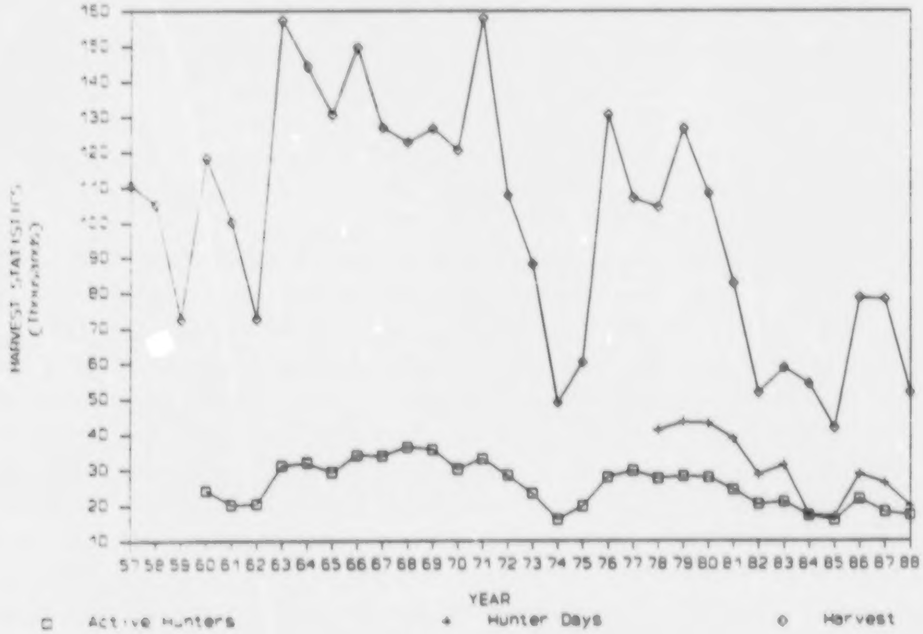


Fig. 36. Saskatchewan sharp-tailed grouse hunting activity, 1957 to 1988.

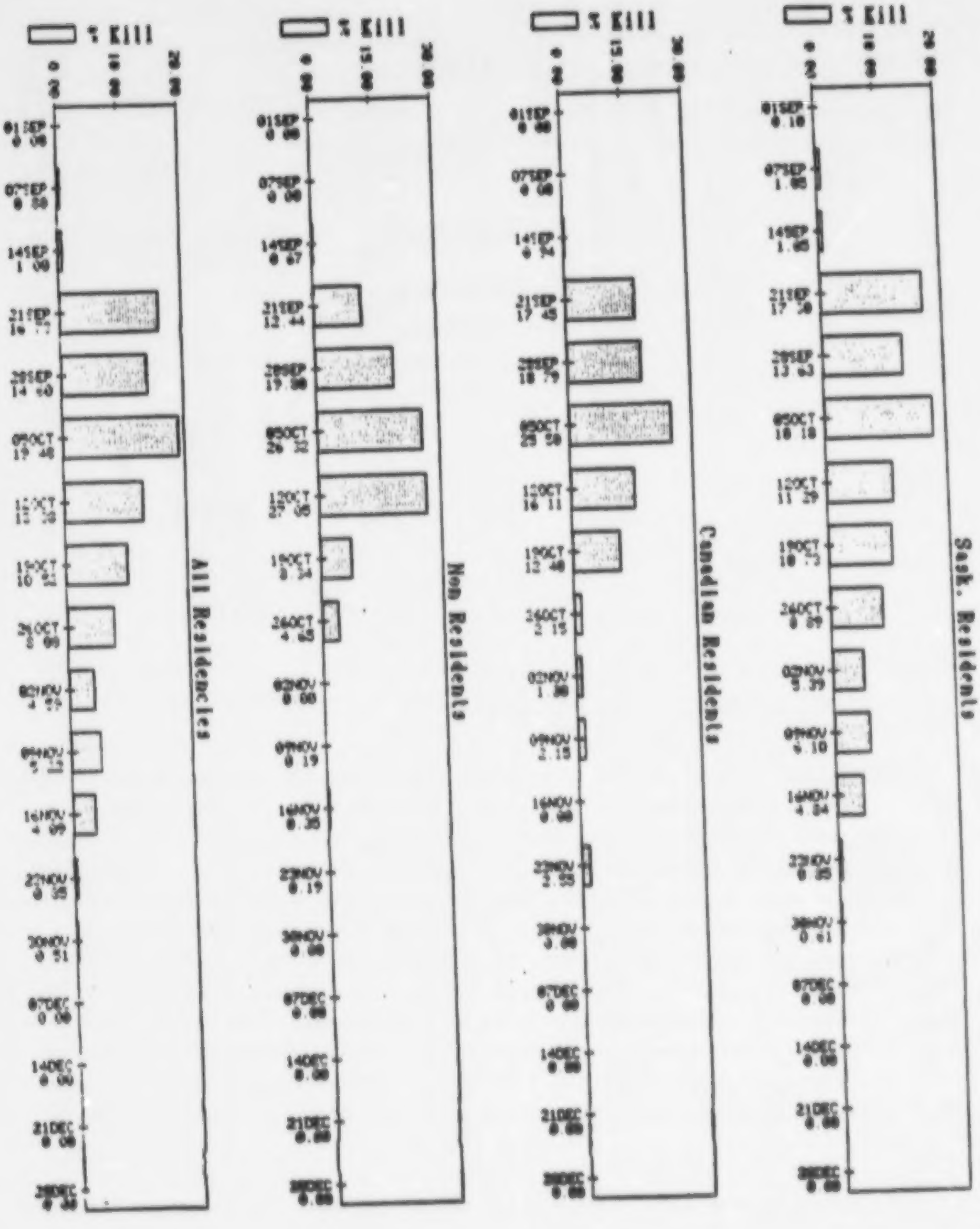


Fig. 37. Percentage of sharp-tailed grouse harvest by residency and weekly interval.

Table 89. Sharp-tailed grouse hunting data for Saskatchewan, 1972 to 1988.

Year	Active Sharptail Hunters	Sharp-tailed Grouse Hunter Days	Total All Upland Bird Hunter Days[a]	Upland Hunter Days/Active Sharptail Hunter	Sharptail Harvest	Sharptail Harvest/ Active Sharptail Hunter	Sharptail Harvest/ Upland Hunter Days	Sharptail Harvest/ Species Hunter Day
1972	28,575	N/A	56,534	2.0	107,813	3.8	1.9	N/A
1973	23,498	N/A	53,275	2.3	88,178	3.8	1.7	N/A
1974	16,041	N/A	37,801	2.4	48,808	3.0	1.2	N/A
1975	19,746	N/A	48,161	2.4	60,428	3.1	1.1	N/A
1976	27,976	N/A	86,525	3.1	130,784	4.7	1.5	N/A
1977	29,794	N/A	93,496	3.1	107,003	3.6	1.1	N/A
1978	27,577	41,153	72,379	2.6	104,497	3.8	1.4	2.5
1979	28,221	43,428	72,096	2.6	126,834	4.5	1.8	2.9
1980	27,949	43,044	75,578	2.7	108,455	3.9	1.4	2.5
1981	24,461	38,710	68,988	2.8	82,745	3.4	1.2	3.4
1982	20,375	28,629	50,382	2.5	51,741	2.5	1.0	2.5
1983	21,068	31,392	60,146	2.9	58,823	2.8	1.0	1.9
1984	17,164	17,421	44,854	2.6	54,233	3.2	1.2	3.1
1985	15,838	16,785	40,148	2.5	41,788	2.6	1.0	2.5
1986	21,860	28,761	74,900	3.4	78,565	3.6	1.0	2.7
1987	18,151	26,372	83,179	4.6	78,210	4.3	0.9	3.0
1972-1987 Average	23,018	31,569	63,653	2.8	83,056	3.6	1.3	2.6
1988	17,240	19,796	72,059	4.2	51,725	3.0	0.7	2.6
% Change								
1988 from 1987	-5.0%	-24.9%	-13.4%	-8.8%	-33.8%	-30.3%	-23.5%	-11.9%
1988 From Average	-25.1%	-37.3%	+13.2%	+51.1%	-37.7%	-16.7%	-44.9%	-0.7%

[a] Statistics from 1983 to present includes pheasant hunter activities.
[b] N/A - not available.

Parkland, Forest Fringe and Forest ecozones all showed increased sharp-tailed grouse hunting activity in 1988 (Table 88). These ecozones contributed 38.6% of the provincial harvest. This significant proportion may be partially attributed to the reduced harvest in the Grasslands and Farmlands ecozones. It may also be partially attributable to the peak in the ruffed grouse cycle which attracted increased effort by upland bird hunters and as a consequent, an increase in the sharptail harvest. When southern upland bird populations were at record highs in 1987, these three ecozones accounted for only 22.8% of the harvest. It is probable that more sharptails were harvested incidently by ruffed grouse hunters during 1988. The higher numbers of active hunters per WMZ and hunter days in the northern ecozones suggest that this effect may have been an important factor (Table 88).

In summary, the 1988 sharp-tailed grouse season was disappointing for many hunters who anticipated above average population densities similar to those of 1986 and 1987. However, total harvest and harvest per active hunter in 1988 was equivalent to or better than previous years (Table 89; Fig. 36). The hot, dry weather and habitat degradation in the Grassland and Farmland WMZ are believed to have reduced sharptail recruitment and resulted in lower hunting success compared to 1987. Parkland, Forest Fringe and Forest ecozones may not have been as severely impacted by spring weather, thus hunting opportunities were better. The attraction of peak ruffed grouse populations may also have contributed to increased sharptail harvests in these three ecozones.

B. POPULATION STATUS

1. 1988 Sharp-tailed Grouse Reproduction

Sharptail reproduction, based on wing samples collected in the hunter harvest, fell to a record low of 0.44 juveniles per adult in 1988. This estimate constitutes a decline of 65% in relation to 1987 and 70% compared to the 1957-1988 long-term average (Table 90; Fig. 32). In all ecozones, except the Forest Fringe and Forest, ratios were decreased by

Table 90. Sharp-tailed grouse reproductive index (juveniles/adult), 1975 to 1988[a]

Year	Grassland	Farmland	Parkland	Forest	Province
1957	—	—	—	—	1.25
1958	—	—	—	—	1.01
1959	—	—	—	—	1.02
1960	1.3	1.32	1.76	—	1.43
1961	1.57	1.27	1.64	—	1.77
1962	2.03	3.10	3.25	—	2.93
1963	4.30	6.28	4.74	—	4.91
1964	2.26	2.47	1.76	—	2.72
1965	1.52	1.76	1.61	—	1.68
1966	—	—	—	—	1.86
1967	—	—	—	—	1.51
1968	—	—	—	—	1.05
1969	—	—	—	—	1.04
1970	—	—	—	—	1.52
1971	—	—	—	—	2.43
1972	—	—	—	—	1.45
1973	—	—	—	—	1.21
1974	—	—	—	—	2.09
1975	1.67	1.95	1.06[b]	2.38[b]	1.78
1976	0.76	1.62	2.09	1.42	1.19
1977	0.56	0.88	0.84	2.80[b]	0.82
1978	2.00	2.18	1.78	2.73[b]	2.01
1979	0.73	1.75	1.68	3.81	1.62
1980	0.46	0.94	1.66	1.51	0.93
1981	0.62	0.81	0.98	0.62	0.77
1982	0.85	2.19	2.44[b]	2.50[b]	1.96
1983	1.07	1.62	1.36	0.58	1.45
1984	0.53	1.06	1.71	2.33[b]	0.97
1985	1.08	1.94	1.36	8.67[b]	1.71
1986	2.22	1.60	1.02	3.29	1.68
1987	1.36	1.17	1.55	1.38	1.27
1988	0.32	0.14	0.51	1.75	0.44
1957-88 Average	1.22	1.44	1.70	1.81	1.47
% Change					
1988 from 1987	-76%	-88%	-67%	+21%	-65%
1988 from Average	-74%	-90%	-70%	-3%	-70%

[a] Based on wing samples from harvest.

[b] Sample less than 50 wings.

67% to 88%. As discussed earlier, the hot, dry spring of 1988 is believed to have reduced reproductive success by the impact of these conditions during the critical periods of incubation and hatching (Figures 35 and 38).

2. 1989 Breeding Population Status

The 1989 provincial population index for breeding sharp-tailed grouse was estimated to be 1.50 males per km² (3.88/mi²), a decline of 42% from 1988 (Table 91). The 1989 estimates remain higher than indices for the periods 1972-75 and 1982-85 (Fig. 39; Appendix 18). The three most important ecozones for sharptails, the Grasslands, Farmlands and Parklands, showed consistent declines in sharptail densities.

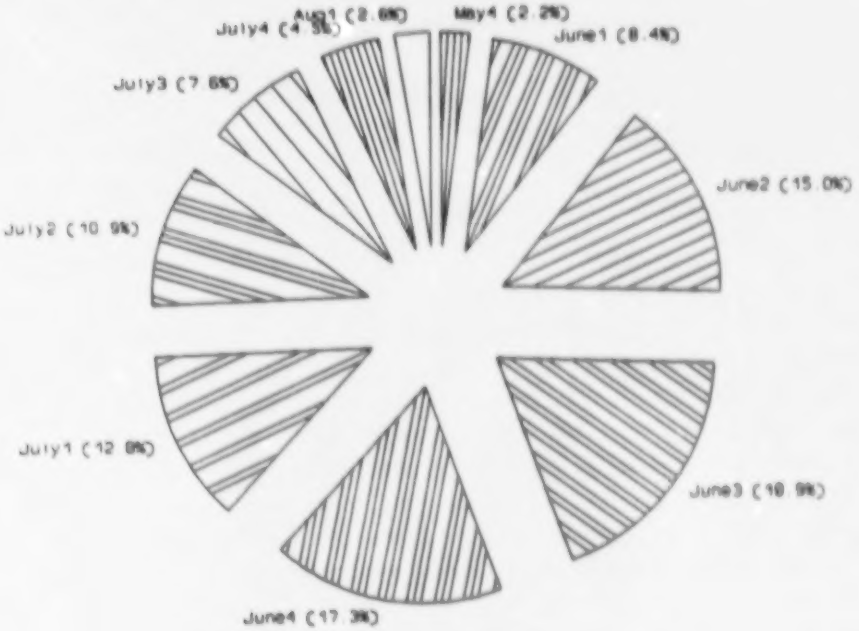


Figure 38. Important weeks in hatch chronology for Saskatchewan sharp-tailed grouse.

Table 91. Sharp-tailed grouse breeding population surveys, April to May 1989.

Wildlife Management Zone	Surveyed Area	Area Surveyed (km^2)	Breeding Males/km^2				
			1985	1986	1987	1988	1989 (mi^2)
1	Amulet	51.8	0.44	1.24	2.12	2.70	1.00 (2.60)
4	Meyronne	41.4	0.97	1.13	3.28	3.28	2.31 (6.00)
5	Turkey Track	41.4	0.97	2.34	2.80	2.77	1.20 (3.12)
9	Bowies Ranch	49.2	0.90	1.24	2.56	3.21	2.09 (5.42)
10	North Great Sandhills	49.2	1.65	2.30	2.95	2.27	1.62 (4.21)
10	Elkinks	41.4	0.87	—	4.20	4.10	1.42 (3.68)
12	Cabri Sandhills	36.3	—	—	—	2.54	2.45 (6.35)
GRASSLAND		310.7	0.96	1.64	2.86	3.02	1.70 (4.40)
							Difference:[a] -44%
15	Goodwater	46.6	2.18	3.17	5.47	4.25	2.35 (6.11)
16	Wellington	44.0	—	3.79	2.88	3.81	2.35 (6.11)
17	Strawberry Lakes	41.4	0.91	1.66	1.64	1.37	1.30 (3.37)
19	Mortlach	49.2	1.97	1.62	2.57	3.23	1.42 (3.70)
19	Val Jean	33.0	3.72	6.54	11.12	12.69	4.93 (12.78)
20	Bethune	62.0	0.68	0.81	0.88	0.90	0.35 (0.92)
21	Gibbs	41.4	1.03	1.28	1.57	1.86	1.37 (3.56)
21	Last Mountain Lake	38.8	0.64	1.59	1.90	1.85	0.92 (2.40)
22	Hanley	93.24	—	—	—	—	0.57 (1.50)
23	Elbow	41.4	2.22	2.80	3.64	2.61	1.78 (4.62)
24	Coteau	64.8	—	1.32	1.00	—	0.60 (1.56)
26	Alsask	49.2	1.46	2.50	3.23	2.24	1.40 (3.63)
28	Duperow	36.3	—	4.96	4.61	5.63	3.99 (10.35)
30	Asquith	31.1	0.90	1.22	1.42	1.61	0.96 (2.50)
FARMLAND		672.4	1.47	2.22	2.88	2.63	1.44 (3.72)
							Difference: -45%
31	Coalfields	43.4	—	—	2.74	2.95	1.61 (4.17)
33	Tecumseh	51.8	1.66	2.90	4.42	4.21	2.66 (6.90)
38	Fort Block	62.2	1.00	1.32	1.75	—	0.60 (1.58)
39	Goodspirit	41.4	—	2.05	2.29	1.70	1.32 (3.43)
40	Quill Lakes	41.4	0.89	0.87	1.08	1.39	1.18 (3.06)
45	Aroma Lake	46.6	1.03	—	0.90	0.62	1.09 (2.83)
PARKLAND		286.8	1.02	1.66	1.96	2.23	1.39 (3.60)
							Difference: -27%
PROVINCE (28 survey blocks)		1,269.9 km^2	1.24	1.97	2.63	2.65	1.50 (3.88) Difference: -43%

---

[a] Percent difference in 1989 male sharptail density figures compared to 1988; based on comparable survey blocks only.

On an annual basis, upland bird populations may vary somewhat between ecozones but similar trends are apparent over the long term. Sharp-tailed grouse populations in one ecozone usually coincides with similar trends in other regions of the province (Fig. 39), although changes may not be as pronounced for one area as compared to another. Historic density estimates for sharp-tailed grouse display an apparent 8-year cycle since 1969 (inception of present day density survey technique) (Fig. 40). Although the cause of this cycle is unknown, the statistical evidence is strong (polynomial regression; $R^2 = 0.85$). When factors such as reproduction and harvest are compared to this cycle, no correlation is evident in some years (Fig. 41). In other cases where there was a link, it was not strong enough to account for the overall rise or fall in population densities the following year. Therefore, it appears that fluctuations in the sharptail population is much more the result of complex environmental factors interacting than just a "cause-and-effect" relationship with annual harvest and reproduction.

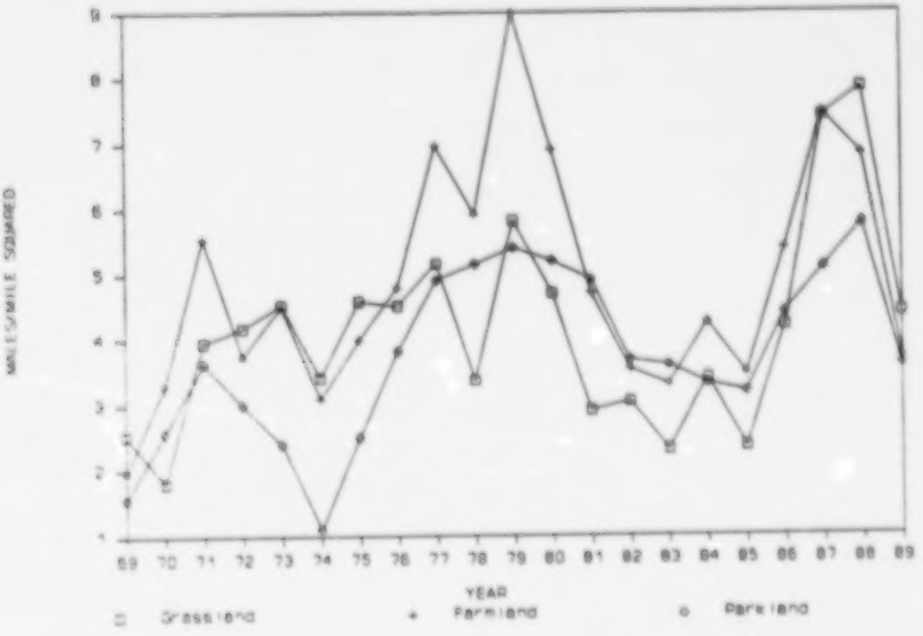


Fig. 39. Sharp-tailed grouse breeding population densities (males/mi^2).

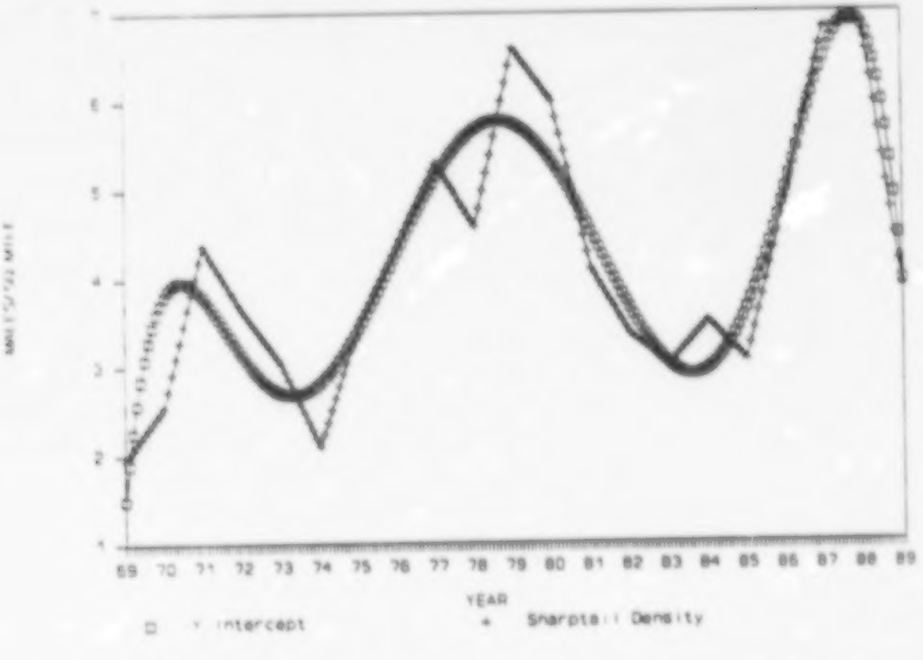


Fig. 40. Provincial sharp-tailed grouse breeding densities (males/mi^2) and polynomial regression indicating cyclic nature of densities since 1969 ($R^2 = 0.85$).

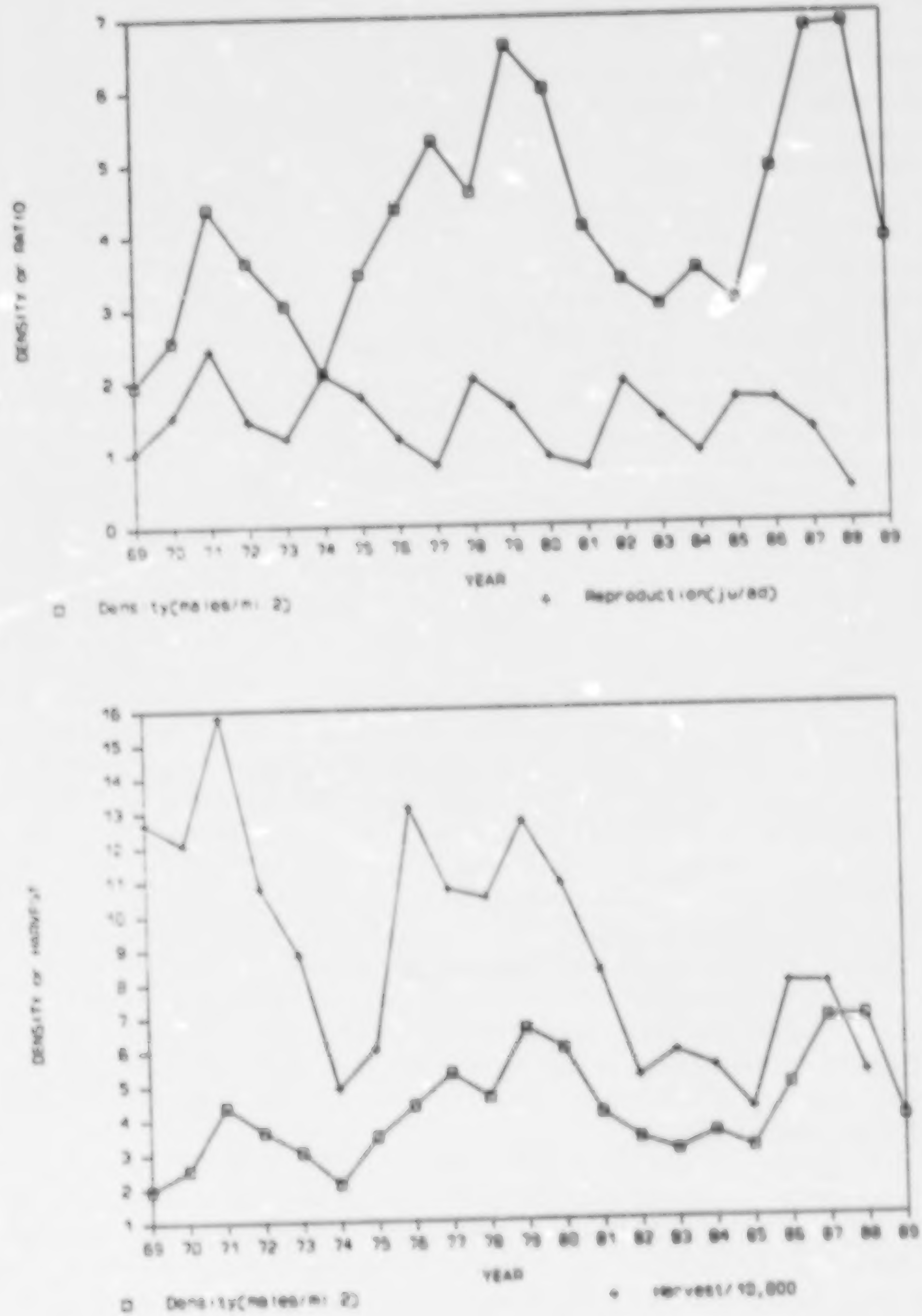


Fig. 41. Comparison of reproductive success and harvests to provincial breeding population densities.

C. 1989 MANAGEMENT OBJECTIVES

After record low reproduction in 1988 and hunting opportunity below the expectations built up over the last 3 years of high populations, 1989 will see populations and hunting opportunity comparable to 1982-85. Provincial breeding indices were essentially the same as the mid 1980's.

Nesting success is expected to be normal in response to the cool, moist conditions which have prevailed through the peak incubation period of May and early June. However, vegetation cover has been depleted on many native nesting areas as a result of drought and livestock grazing. The quality and quantity of available nesting and brood cover may influence 1989 reproductive success and population growth.

Winter severity exerts a primary influence on sharp-tailed grouse and other upland game species in Saskatchewan. As was the case in 1988, spring weather severity can also impact upon populations. The quality and quantity of habitat is believed to determine the population levels persisting during these periods of severe weather. Although hunting may influence local populations existing on a limited habitat base, environmental factors have a much more important influence on population levels on a ecozone or provincial basis.

The influence of environmental conditions is evident in population data for three sharptail survey blocks in the Great Sand Hills: the Elkink Ranch, the Bowie Ranch and the North Great Sandhills (NGS) survey blocks (Table 91). All three blocks have similar 5 year average densities (Elkink = 2.65 males/km2; NGS = 2.16 males/km2; Bowie = 2.00 males/km2), are relatively close to each other geographically, so experience similar weather conditions, and are included within large tracts of homogenous habitat influenced primarily by cattle ranching. What does differ between blocks is relative hunting pressure with the NGS being hunted heavily, Bowie Ranch being hunted lightly and Elkink Ranch receiving virtually no hunting pressure. Although densities have fluctuated on all three blocks over the past 5 years, these fluctuations have been most pronounced on the lightly hunted or non-hunted areas and densities on these two areas were more prone to decline than on NGS.

Comparing annual change in density to the 5 year average density, the Elkink block has fluctuated an average of 57%, the Bowie block 37% and the NGS block only 19%. If hunting influences the NGS population, it may be within limits dictated by available sharptail habitat and the influence of weather. It appears that NGS sharptail harvests consist primarily of surplus birds which could not be sustained regardless of hunting.

D. 1989 SHARP-TAILED GROUSE SEASONS

The 1989 sharp-tailed grouse season proposal is to standardize bag limits across the province at 3 daily and 6 possession. This is a reduction from the 5 daily, 10 possession in 1988 in the Grassland and most Farmland WMZ and is intended to assist populations in small habitat units to recover more rapidly. On average, Saskatchewan residents harvest 3 or fewer birds per day in the field while non-residents harvest sharptails at a rate higher than 3 per day. As a result, the reduced daily limit is expected to impact non-resident hunters to a larger extent than resident hunters.

Population densities remain adequate to retain the traditional opening dates of September 20 in the south (WMZ 1 to 47) and September 6 in the north (WMZ 48 to 76). This will coincide with the opening of the Hungarian partridge and ruffed grouse seasons. However, the duration of the sharptail season will be shortened in the south by two weeks and will close November 4 rather than November 18. Over the past three years, the last two weeks of the season has contributed approximately 12% of the annual sharptail harvest with 14% of the hunters active in this period. As in the case of reduced bag limits, it is expected that the shorter season will contribute to population growth without discouraging hunter interest.

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limits
Sharp-tailed Grouse (All Hunters)	Zones 1 to 8, 15 to 24, 29 to 47, including Last Mountain Lake Wildlife Management Unit; and starting October 4, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and starting October 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 4	3 daily 6 possession
	Zones 48 to 76, including Clearwater River, Lac la Ronge, Meadow Lake, and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	3 daily 6 possession
Sharp-tailed Grouse (Sask. Residents and Canadian Residents Only)	Zones 9 to 14 and 25 to 28	Sept. 20 - Nov. 4	3 daily 6 possession

HUNGARIAN PARTRIDGE

A. REVIEW OF 1988 HUNTING SEASON

For the sixth consecutive year the reported 1988 Hungarian partridge harvest surpassed the sharp-tailed grouse kill, however, ruffed grouse overtook partridge to become Saskatchewan's most harvested species for upland game birds (Table 86). A total of 78,621 partridge were taken in the fall of 1988 which was 24% below the 1987 level of 103,903 birds, but was 17% above the 1972-87 average (Table 92; Fig. 42; Appendix 19). The number of active hunters decreased by 5% to 14,960 while harvest per active hunter fell to 3.7 birds, 44% below the record year of 1987. The percentage of active hunters which were successful decreased from 82% in 1987 to 76% in 1988 (Table 86). Compared to the 1972-87 average, active hunters were down by 22% but harvest per active hunter was up 6% in 1988 (Table 92). Partridge hunter success per hunter day declined marginally (4%) from 3.86 birds in 1987 down to 3.69 birds, but was still 28% above the 1981-87 average.

As in the case of sharp-tailed grouse, the first three weeks of the Hungarian partridge season produced 47% of the total harvest and 46% of the partridge hunter days for the entire season (Fig. 43). The single most important week in terms of active hunters (17%), harvest (19%) and hunter days (20%) coincided with the opening of the early pheasant season. An estimated 911 Saskatchewan hunters took part in the late partridge season, which ran concurrently with the late pheasant season. This was approximately the same level of participation as occurred for the late pheasant season (954 hunters). Although only 3% of the provincial harvest was derived from the late partridge season, participation by hunters active in the pheasant season was high (95%) without resulting in a major impact on partridge populations. The relationship between pheasant hunting and partridge hunting activity was evident in the fact that 34% of the Hun harvest originated from the four most important pheasant WMZ 2, 4, 5 and 15 (Appendices 19 and 20).

Hunting activity in Grassland and Farmland WMZ declined in 1988 compared with 1987 (Table 93). Estimates of hunter activity in Parkland and Forest Fringe WMZ increased. This may have been a result of better reproduction because the impact of drought was not as pronounced in the Parkland and incidental harvest by ruffed grouse hunters. The Farmland ecozone continued to contribute the highest percentage of the provincial harvest (55%) while the Grassland maintained its number one rating for kill per hunter day (3.94) in 1988.

In summary, the 1988 Hungarian partridge season did not meet the initial expectation of record bird numbers and excellent hunting opportunity. Hot, dry weather through the critical incubation and hatching periods (Fig. 35) is believed to have caused very poor recruitment in 1988. Nevertheless, hunter participation (i.e. active hunters) remained relatively stable compared to 1987 and harvest was 17% above the 1972-87 mean (Table 92; Fig. 42). Partridge hunters took an average of 3.7 birds per day, exceeding the 1981-87 mean by 28%.

Table 92. Hungarian partridge hunting data for Saskatchewan, 1972 to 1988[a].

Year	Active Hungarian Partridge Hunters	Partridge Hunter Days	Upland Bird Hunter Days Zones 1-22 (1972-83) Zones 1-55 (1984-88)	Upland Hunter Days/Active Partridge Hunter	Hungarian Partridge Harvest	Partridge Harvest/ Active Hunter	Partridge Harvest/ Upland Hunter Day	Partridge Harvest/ Species Hunter Day
1972	23,360	N/A[b]	49,692	2.1	77,093	3.3	1.6	N/A
1973	20,741	N/A	50,827	2.5	74,668	3.6	1.5	N/A
1974[c]	15,276	N/A	33,722	2.2	33,608	2.2	1.0	N/A
1975[c]	17,356	N/A	39,353	2.3	45,125	2.6	1.2	N/A
1976[c]	22,835	N/A	73,458	3.2	90,897	4.0	1.2	N/A
1977[c]	25,535	N/A	78,289	3.1	93,616	3.7	1.2	N/A
1978	21,320	N/A	58,514	2.7	60,585	2.8	1.0	N/A
1979	21,041	N/A	59,801	2.8	69,127	3.3	1.2	N/A
1980	20,698	N/A	61,856	3.0	66,349	3.2	1.1	N/A
1981	19,617	28,362	57,149	2.9	64,349	3.3	1.1	2.3
1982	17,056	23,136	43,995	2.6	41,743	2.4	0.9	1.8
1983	19,014	26,409	54,452	2.9	61,073	3.2	1.1	2.3
1984	15,511	16,596	42,219	2.7	59,794	3.9	1.4	3.6
1985	12,867	13,347	36,889	2.9	41,998	3.3	1.1	3.1
1986	17,964	27,626	65,911	3.7	92,270	5.1	1.4	3.3
1987	15,699	26,950	71,400	4.5	103,903	6.6	1.5	3.9
1972-87 Average	19,118	23,204[d]	54,845	2.9	67,262	3.5	1.2	2.9[d]
1988	14,962	21,311	58,759	3.9	78,621	3.7	1.3	3.7
% Change								
1988 from 1987	-4.7%	-20.9%	-17.7%	-13.3%	-24.3%	-43.9%	-8.2%	-4.4%
1988 from Average	-21.7%	-8.2%	+7.1%	+34.5%	+16.9%	+5.7%	+8.9%	+27.7%

[a] Forest and Shield Division excluded from data because of insignificance to Hungarian partridge hunting.
[b] N/A - not available.
[c] Inaccurate data were published for these years prior to 1979 corrections.
[d] 1981-87 average only.

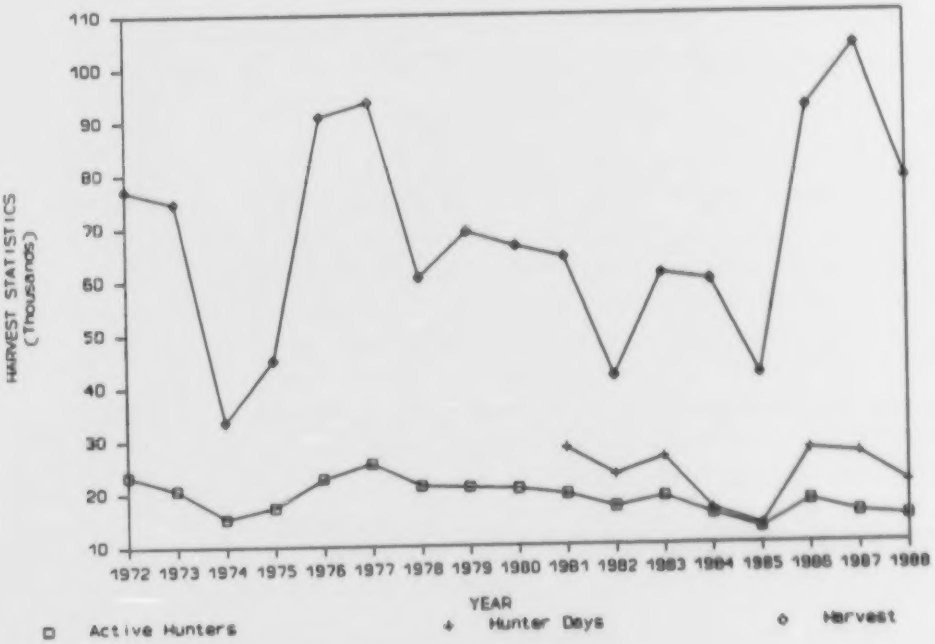


Fig. 42. Saskatchewan Hungarian partridge hunting activity, 1972 to 1988.

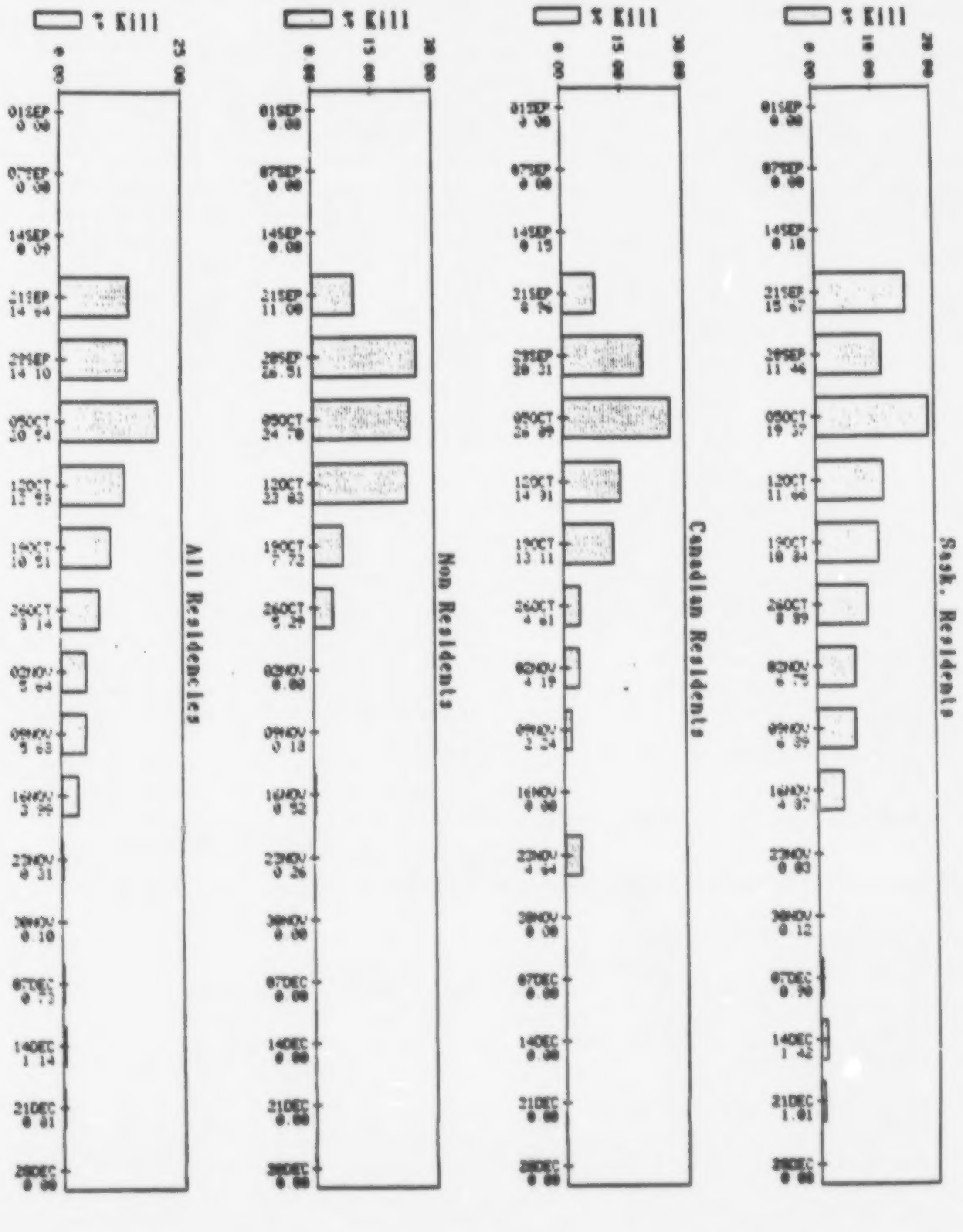


Fig. 43. Saskatchewan 1988 Hungarian partridge harvest by residency and weekly interval.

Table 93. Hungarian partridge hunting statistics for Saskatchewan by ecological division, 1988 vs. 1987.

	Grassland Zones 1-14		Farmland Zones 15-30		Parkland Zones 31-47		Forest Fringe Zones 48-55		Province[a]	
	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987
Harvest % of Total	26,088 (33.2)	37,195 (35.8)	43,395 (55.2)	52,558 (55.3)	6,671 (11.0)	8,415 (8.1)	472 (0.60)	847 (0.81)	78,626 (100)	104,015 (100)
Harvest Pressure (kill/sq km)	0.403	0.574	0.478	0.634	0.088	0.085	0.018	0.032	0.125	0.371
Upland Bird Hunter Days	13,540	21,090	23,363	31,225	14,963	12,472	6,893	6,613	58,759	71,400
(% of Total)	(23.0)	29.5)	(39.8)	(43.7)	(25.5)	(17.5)	(11.7)	(9.3)	(100)	(100)
Species Hunter Days (% of Total)	6,618 (31.1)	9,104 (33.8)	11,793 (55.3)	14,845 (55.1)	2,740 (12.9)	2,714 (10.1)	160 (0.75)	287 (1.1)	21,311 (100)	26,950 (100)
Hunting Pressure (Upland Hunter Days/sq km)	0.209	0.325	0.257	0.344	0.152	0.127	0.262	0.252	0.209	0.255
Hunter Success (Kill/Upland Hunter Day)	1.93	1.76	1.86	1.84	0.58	0.67	0.07	0.128	1.34	1.46
Hunter Success (Kill/Species Hunter Day)	3.94	4.09	3.68	3.88	3.16	3.10	2.95	2.95	3.69	3.86

[a] Forest and Northern Shield ecozones excluded from hunter days and area (km) calculations; Hungarian partridge are essentially absent from these areas and partridge hunting is not permitted in WMZ 56-76.

B. POPULATION STATUS

1. 1988 Hungarian Partridge Reproduction

The 1988 reproduction index of 0.77 juveniles per adult bird was the lowest recorded in 32 years (Table 94; Fig. 32). This ratio constituted declines of 75% and 73% from the 1987 index and 1957-87 average, respectively. The dramatic drop occurred in all ecozones, but was most pronounced in the Grassland where the ratio of 0.67 young per adult represented a 82% decrease from last year.

A brood survey for Hungarian partridge was carried out by Wiltse and Haughian (88-WPM-14) on August 8 and 9, 1988. The objective was to document partridge brood sizes and relative abundance in a sample of WMZ 1 and 4 abandoned farmsteads, previously surveyed in the spring of 1988. Brood size varied from 2 to 14 birds per brood with the mean being 7.3 (excludes adults). Hunt (1974) reported average broods of 11.5 and 13.3 upon fledging at Conquest while Melinchuk (1981) found the mean August brood size to be 16.0 at Eyebrow. Based upon a minimum mean clutch size of 15.3 eggs and an approximate hatching success rate of 92%, the average brood size at hatching would have been 14.4 young. On this basis, the estimated reduction in brood size between the time of hatch and early August was 49%. Other researchers have reported average losses of from 34% to 39% during this period.

Table 94. Hungarian partridge reproductive index (juveniles/adult), 1957-88 (based on wing samples from harvest).

Year	Ecozone			
	Grassland	Farmland	Parkland	Province
1957	—	—	—	3.65
1958	—	—	—	2.76
1959	—	—	—	3.43
1560	2.07	2.98	5.61	2.79
1961	2.81	2.86	3.96	3.06
1962	7.36	4.19	5.29	5.29
1963	3.38	2.93	5.35	3.44
1964	2.33	3.97	3.41	3.08
1965	2.05	2.11	2.74	2.03
1966	2.05	2.11	2.74	2.17
1967	—	—	—	2.39
1968	—	—	—	2.23
1969	—	—	—	3.09
1970	—	—	—	2.74
1971	—	—	—	3.81
1972	—	—	—	4.06
1973	—	—	—	4.80
1974	—	—	—	3.49
1975	2.85	4.58	2.33[b]	3.74
1976	1.69	3.70	3.50[b]	2.56
1977	4.23	2.57	2.00[b]	2.79
1978	2.77	2.95	5.00[b]	2.97
1979	2.18	4.42	2.57	3.92
1980	2.24	3.17	5.33[b]	3.11
1981	1.38	1.51	1.54[b]	1.50
1982	5.00	2.86	3.50[b]	2.99
1983	2.38	3.46	6.00[b]	3.21
1984	2.13	3.42	3.10	2.67
1985	3.40	3.88	3.67[b]	3.60
1986	5.07	5.70	6.40[b]	5.50
1987	3.66	2.73	5.44	3.10
1988	0.67	0.94	0.72[b]	0.77
1957-88 Average	2.52	2.87	3.76	2.89
% Change				
1988 from 1987	-82%	-66%	-87%	-75%
1988 from Average	-73%	-67%	-81%	-73%

[a] Based on wing samples from harvest.
[b] Sample less than 50 wings.

This investigation also examined the success of pairs in producing a brood. During the spring breeding pair survey, 37 Hun pairs were observed in the 12 farmsteads subsequently sampled in the August survey. Based on this sample, only 41% of the breeding pairs were estimated to have produced a brood. This rate is 50% lower than rates previously reported by Hunt (1974) where 82% of the resident pairs successfully raised a brood.

Factors believed to have contributed to the record low reproductive index for 1988 include:

1) Abnormally high numbers of breeding pairs on a finite amount of quality habitat meant dominant pairs pushed subordinate pairs onto marginal habitats which would not support brood production in 1988.

2) Record high temperatures and low relative humilities during the incubation and hatching period resulted in high egg and chick mortality.

3) Habitat components such as insect production and suitable vegetative cover, necessary for brood survival, were absent owing to adverse environmental conditions.

2. 1989 Breeding Population Status

Spring surveys of 436 abandoned farmsteads revealed a provincial index of 0.72 pairs per farmstead (Table 95). In relation to the 1988 survey index which were the highest ever recorded, the 1989 index decreased by 53%. However, this estimate was still comparable or higher than indices throughout the 1980's (Fig. 44). The Farmlands declined by 60% from 1.25 pairs in 1987 to 0.50 per farmstead while the Grassland followed by dropping 57% from 2.41 to 1.05 pairs per farmstead (Table 95).

Table 95. Hungarian partridge breeding population surveys, spring 1989.

Wildlife Management Zone	Pairs/Farmstead				Number of Farmsteads Surveyed 1989	1989 Pairs/ Farmstead
	1985	1986	1987	1988		
1	0.80	1.50	2.00	2.14	15	0.86
2	—	—	1.30	2.72	33	1.33
4	1.03	0.80	1.71	2.76	41	0.90
5	—	—	2.00	3.90	35	1.66
9	0.67	0.67	0.78	2.20	13	1.00
10	0.63	0.27	0.38	1.25	21	1.04
13	—	—	0.73	1.36	17	0.52
14	—	0.33	1.42	1.11	16	0.31
GRASSLAND	0.84	0.76	1.31	2.41	191	1.05
						Difference[a]: -57%
15	0.21	0.53	0.95	2.32	19	0.84
17	—	—	0.86	0.60	18	0.44
18	0.22	0.90	0.63	0.53	10	0.00
19	0.50	0.50	1.40	2.50	30	0.30
20	—	—	—	—	19	0.79
21	0.10	0.25	0.45	0.90	20	0.40
22	—	—	—	—	10	0.10
23	0.40	0.55	0.95	1.95	36	0.72
24	0.15	0.45	1.00	1.40	20	0.80
25	0.26	0.27	0.69	0.60	10	0.00
26	0.20	0.40	0.40	0.70	10	0.20
28	—	—	0.20	0.33	19	0.47
29	—	0.42	1.08	1.00	14	0.57
30	—	—	—	—	19	0.57
FARMLAND	0.24	0.43	0.80	1.25	225	0.50
						Difference: -60%
31	—	0.82	0.85	1.00	20	0.40
PROVINCE	0.41	0.57	1.03	1.77	436	0.72
						Difference: - 53%

[a] Percent difference in 1989 density figures compared to 1988; based on surveys done in comparable zones.

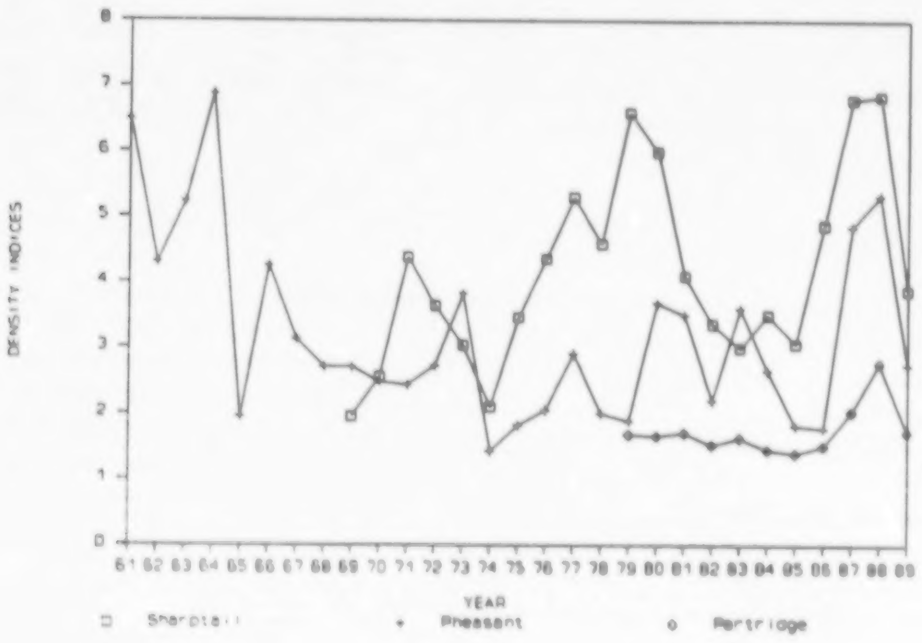


Fig. 44. Hungarian partridge indices and its relationship to sharp-tailed grouse and ring-necked pheasants (representative of densities only, and not population sizes).

D. 1989 MANAGEMENT OBJECTIVES

Hungarian partridge have the greatest reproductive capability of any Saskatchewan game bird. **Minimum** average clutch sizes are reported to be 15.6 eggs with mean hatching successes of 92% for this species. They are persistent re-nesters and some pairs will re-nest as late as August (Fig. 34). As a result, partridge typically show higher rates of production than other Saskatchewan upland bird species (Fig. 32).

Hungarian partridge habitats in agricultural Saskatchewan are generally more secure than sharp-tailed grouse and pheasant habitat because partridge thrive on small parcels of cover such as abandoned farmsteads and hedge rows. Partridge habitat is believed to have endured the 1988 drought in relatively better condition than habitats for the other two species which must contend with deficient residual vegetation cover for nesting and brood rearing.

In summary, the 1989 outlook for Hungarian partridge recruitment and hunting opportunity is favourable. Breeding population indices are slightly below 1987, which was a record year for harvest, but remain above the 1979-87 average. To date, spring weather in 1989 has been more moderate than in 1988 during the critical periods of incubation and hatching (Figs. 34 and 45). If these conditions continue, 1989 should be an excellent year for partridge hunters. In view of these indicators the proposed 1989 bag limit and season proposals are similar to those of 1988.

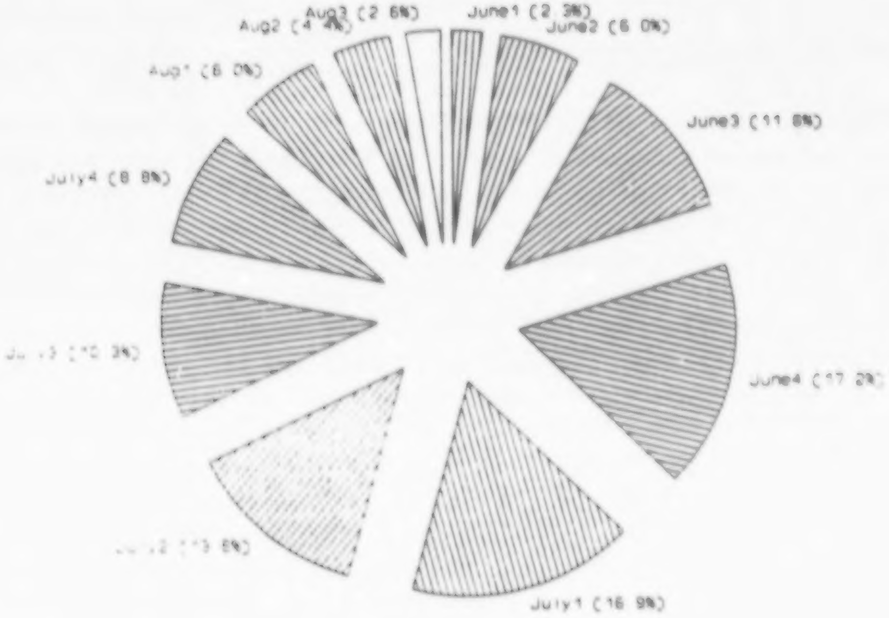


Fig. 45. Important weeks in hatch chronology for Saskatchewan Hungarian partridge.

E. 1989 HUNGARIAN PARTRIDGE SEASONS

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Hungarian Partridge (All Hunters)	Zones 1 to 8, 15 to 19, 22 to 24, 29 and 31; and starting Oct. 4, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and starting Oct. 31, Elbow Wildlife Management Unit	Sept 20 - Nov 18	10 daily 20 possession
	Zones 20, 21, 30 and 32 to 41, including Last Mountain Lake	Sept 20 - Nov 18	5 daily 10 possession
	Zones 42 to 55, including Fort a Come Wildlife Management Unit	Sept 20 - Nov 18	3 daily 6 possession
Hungarian Partridge (Sask. Residents and Canadian Residents Only)	Zones 9 to 14	Sept. 20 - Nov. 18	10 daily 20 possession
	Zones 25 to 28	Sept. 20 - Nov. 28	5 daily 10 possession
Hungarian Partridge (Sask. Residents Only)	Zones 1 to 19, 24, and 31, including Estevan-Cambria and Lomond No. 3 Wildlife Management Unit	Dec 4 - Dec 20	10 daily 20 possession

PHEASANT

A. REVIEW OF 1988 HUNTING SEASON

An estimated 4,941 Saskatchewan pheasant hunters participated in the 1988 pheasant season as compared to 5,523 in 1987 (Table 96; Fig. 46; Appendices 20 and 21). The late season which was reinstated in 1987, accounted for 10% of the total 1988 pheasant harvest (Fig. 47). Active pheasant hunters harvested 11,160 cock pheasants which was 8% below the 12 year average (Table 96; Fig. 46). Active hunters decreased by 11% and pheasant hunter days decreased by 28% from 1987 levels. Hunting success in terms of cocks harvested per hunter day decreased from 2.29 birds per day to 2.16 birds per day which is 13% above the 12-year average of 1.91 (Table 96).

WMZ 15 and 4 were again the most important pheasant hunting areas (Table 97) providing almost 60% of the provincial harvest and pheasant hunter recreation days; WMZ 2 and 5 contributed 27% of the harvest. Hunter success was roughly similar in each of these four zones with 1.99 to 2.33 cocks harvested per hunter day. About 40% of the total harvest occurred during the opening week of the season (October 5-11) (Fig. 47) compared to 33% in 1985, 31% in 1986 and 32% in 1987.

B. POPULATION STATUS

1. 1989 Breeding Population Status

Winter severity in 1988-89 was estimated to be average across most of Saskatchewan's pheasant range, with the exception of WMZ 15 which experienced above-average snow depths. The 1989 provincial spring breeding index returned to 1984-86 levels (Tables 98 and 99) decreasing to 2.74 crows heard per survey stop. This represents a 43% decline in the index from a 23 year high in 1988 of 5.33 crows per survey stop. Historical comparisons of spring breeding indices and harvest estimates for the same year (Fig. 48 and Appendix 22) showed pheasant harvests to be similar to long-term average harvest levels (approximately 12,000) in those years where the spring index has been near 2.74 crows per stop. Spring nesting conditions should be improved over those of 1988 with some recovery in nesting habitat quality anticipated during 1989.

In summary, the 1989 spring breeding index was identical to the average index for the period 1968 to 1988.

Table 96. Pheasant hunting statistics for Saskatchewan, 1976 to 1988[a].

Year	Active Pheasant Hunters	Pheasant Hunter Days	Pheasant Hunter Days/ Active Hunter	Pheasant Harvest	Pheasants Harvested/ Active Pheasant Hunter	Pheasants Harvested/ Pheasant Hunter Day
1976	4,619	7,421	1.6	14,488	3.1	1.95
1977	5,726	9,718	1.7	19,097	3.3	2.05
1978	4,476	6,107	1.4	10,165	2.3	1.66
1979	3,441	4,390	1.3	7,060	2.1	1.61
1980	4,150	5,876	1.4	11,823	2.8	2.01
1981	4,825	7,052	1.5	12,536	2.6	1.78
1982	3,915	5,772	1.5	7,511	1.9	1.30
1983	6,348	9,313	1.5	15,857	2.5	1.70
1984	4,975	4,870	1.0	12,182	2.4	2.50
1985	3,704	3,325	0.9	7,084	1.9	2.13
1986	4,767	4,991	1.0	10,557	2.2	2.12
1987	5,523	7,178	1.3	16,439	3.0	2.29
1976-1987 Average	4,705	6,334	1.4	12,067	2.6	1.91
1988	4,941	5,170	1.0	11,160	2.3	2.16
% Change						
1988 from 1987	-10.5%	-27.9%	-23.1%	-32.1%	-23.3%	-5.7%
1988 from Average	+5.0%	-18.4%	-28.6%	-7.5%	-11.5%	+13.1%

[a] Includes WMZ 1 to 36 (1984-1988) as these are the only zones in which a pheasant season is currently held.

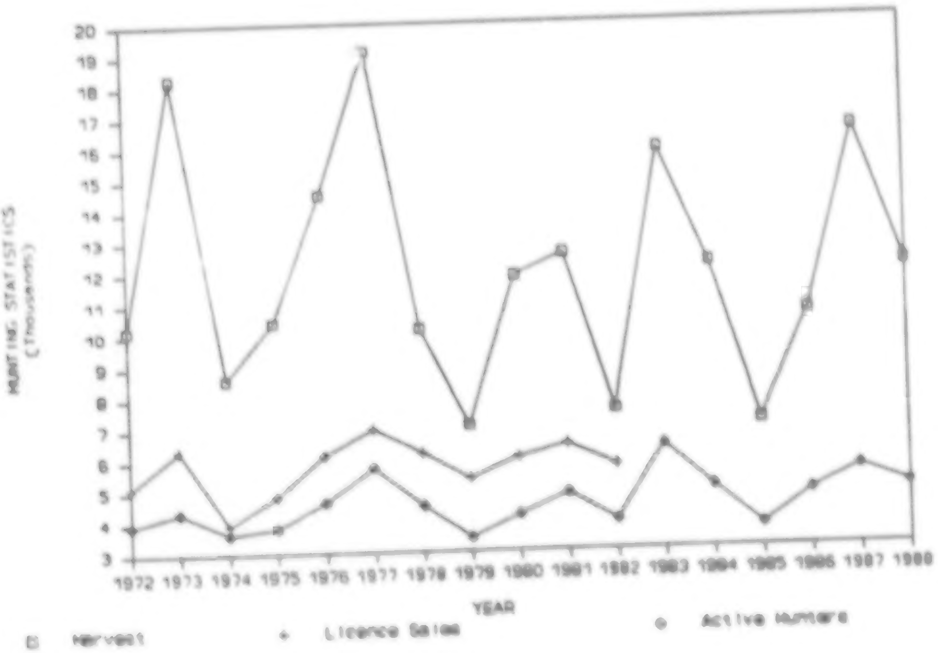


Fig. 46. Saskatchewan pheasant licence sales, active hunters and harvest, 1972 to 1988.

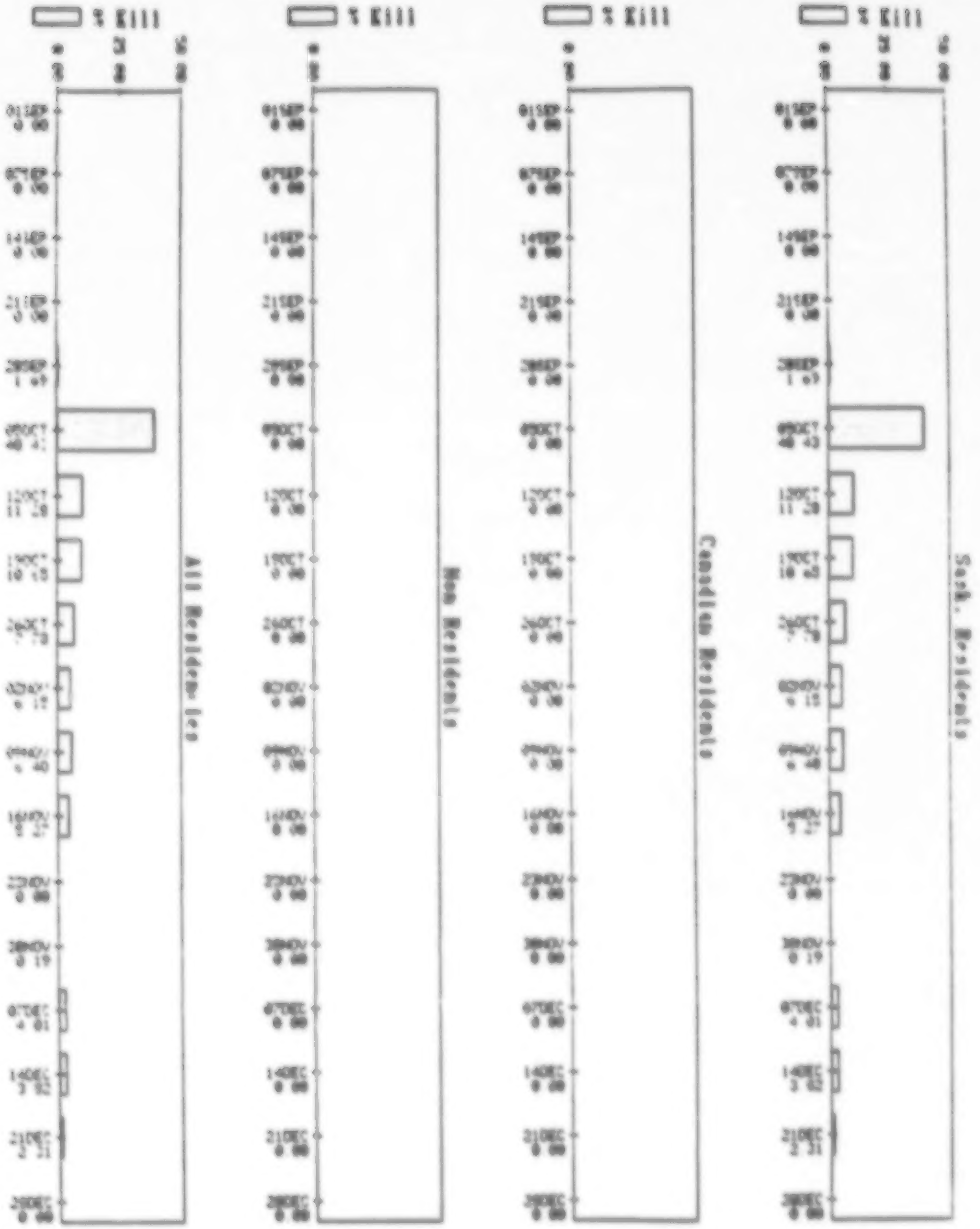


Fig. 47. Saskatchewan 1988 pheasant harvest by residency and weekly interval.

Table 97. Four important pheasant hunting zones in Saskatchewan, 1986 to 1988[a].

	Zone 4			Zone 2			Zone 5			Zone 15			Four Zone Total			Province[a]		
	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988
Harvest (% of Total)	2,349 (23.1)	4,536 (27.6)	1,965 (17.6)	1,250 (11.8)	2,704 (16.5)	1,869 (16.8)	1,619 (15.4)	2,391 (14.6)	1,162 (10.43)	2,801 (26.5)	3,829 (23.3)	4,579 (41.08)	8,109 (76.8)	13,460 (82)	9,575 (85.91)	10,552 (100)	16,419 (100)	11,146 (100)
Harvest Pressure (kill/sq km)	.301	.559	.242	.117	.254	.176	.271	.401	.195	.416	.569	.681	.257	.428	.305	.059	.092	.063
Pheasant Hunter Days (% of Total)	1,158 (23.2)	1,938 (27)	985 (34)	582 (11.7)	1,149 (16)	848 (33)	763 (15.3)	970 (13.5)	566 (30)	1,325 (26.6)	1,691 (23.6)	1,963 (29)	3,828 (76.7)	5,748 (80.2)	4,362 (31.0)	4,989 (100)	7,166 (100)	5,161 (100)
Hunting Pressure (Pheasant hunter days/ sq km)	.14	.24	.12	.05	.11	.08	.13	.16	.09	.20	.25	.29	.12	.18	.28	.05	.04	.05
Hunter Success (kill/pheasant hunter day)	2.11	2.34	2.15	2.15	2.35	2.20	2.12	2.46	2.05	2.11	2.26	2.33	2.12	2.34	2.20	2.12	2.29	2.16

[a] Includes Zones 1-36 as these are the only zones in which a pheasant hunting season is held.

Table 98. Spring breeding surveys of ring-necked pheasant crows per survey stop, 1961 to 1989.

Year	Grassland	Farmland	Provincial	Year	Grassland	Farmland	Provincial
1989	3.00	1.37	2.74	1974	2.57	0.84	1.43
1988	5.25	5.60	5.33	1973	4.48	3.17	3.83
1987	5.30	3.28	4.86	1972	4.01	2.14	2.72
1986	1.81	1.60	1.78	1971	3.58	2.52	2.43
1985	1.93	1.48	1.82	1970	4.40	2.03	2.48
1984	2.80	2.37	2.65	1969	3.72	1.18	2.70
1983	6.90	1.40	3.60	1968	3.48	1.67	2.70
1982	3.00	1.60	2.20	1967	3.66	1.97	3.13
1981	4.00	3.20	3.50	1966	5.10	0.85	4.25
1980	4.88	3.12	3.68	1965	2.27	1.30	1.95
1979	2.54	1.45	1.89	1964	7.43	3.05	6.88
1978	2.99	1.34	2.00	1963	6.11	1.72	5.23
1977	4.62	1.83	2.91	1962	4.57	0.80	4.30
1976	3.49	1.53	2.05	1961	6.50	—	6.50
1975	3.11	1.23	1.82				

Table 99. Cock pheasant breeding population surveys, spring 1989.

Wildlife Management Zone	Survey Route	Pheasant Crows Heard/Survey Stop				
		1985	1986	1987	1988	1989
2	Val Marie	2.90	2.75	8.60	8.30	5.35
4	Woodrow Southwest	—	1.40	5.80	12.05	3.05
4	Bateman - Coderre	2.65	1.15	6.65	2.60	2.35
4	Pinto Creek	0.90	1.05	3.95	3.10	0.75
4	Notekeu Creek	1.25	2.25	6.15	4.80	1.50
5	Cadillac - Ponteix	1.11	0.84	5.27	6.10	1.10
5	Swift Current - Duncairn	1.05	1.95	3.25	3.80	1.55
6	Eastend	1.45	1.06	3.73	4.73	5.28
8	Maple Creek North	3.46	1.80	3.13	3.13	3.73
14	Estuary - Chesterfield	3.05	2.70	5.00	5.30	6.75
14	Snakebite	1.70	2.75	6.40	2.95	2.40
GRASSLAND		1.93	1.81	5.30	5.25	3.00
					Difference[a]:	-42%
15	Radville East	1.55	1.90	4.20	4.70	1.40
20	Moose Jaw South	2.40	1.30	1.45	1.15	1.35
FARMLAND		1.48	1.60	3.28	5.60	1.37
					Difference:	-52%
PROVINCE		1.82	1.78	4.86	5.33	2.74
					Difference:	-43%

[a] Percent difference in 1989 male pheasant crow calls compared to 1988; based on comparable survey routes.

C. 1989 MANAGEMENT OBJECTIVES

The proposed 1989 regulations are essentially unchanged from those of 1988. Because pheasant populations remain at long-term average levels throughout their prime range, continuation of the late season is felt to be warranted. Season dates for 1989 will allow pheasant hunting up to the opening of white-tailed deer season and will continue the traditional late pheasant season in December. The season will have a traditional opening of the first Wednesday in October.

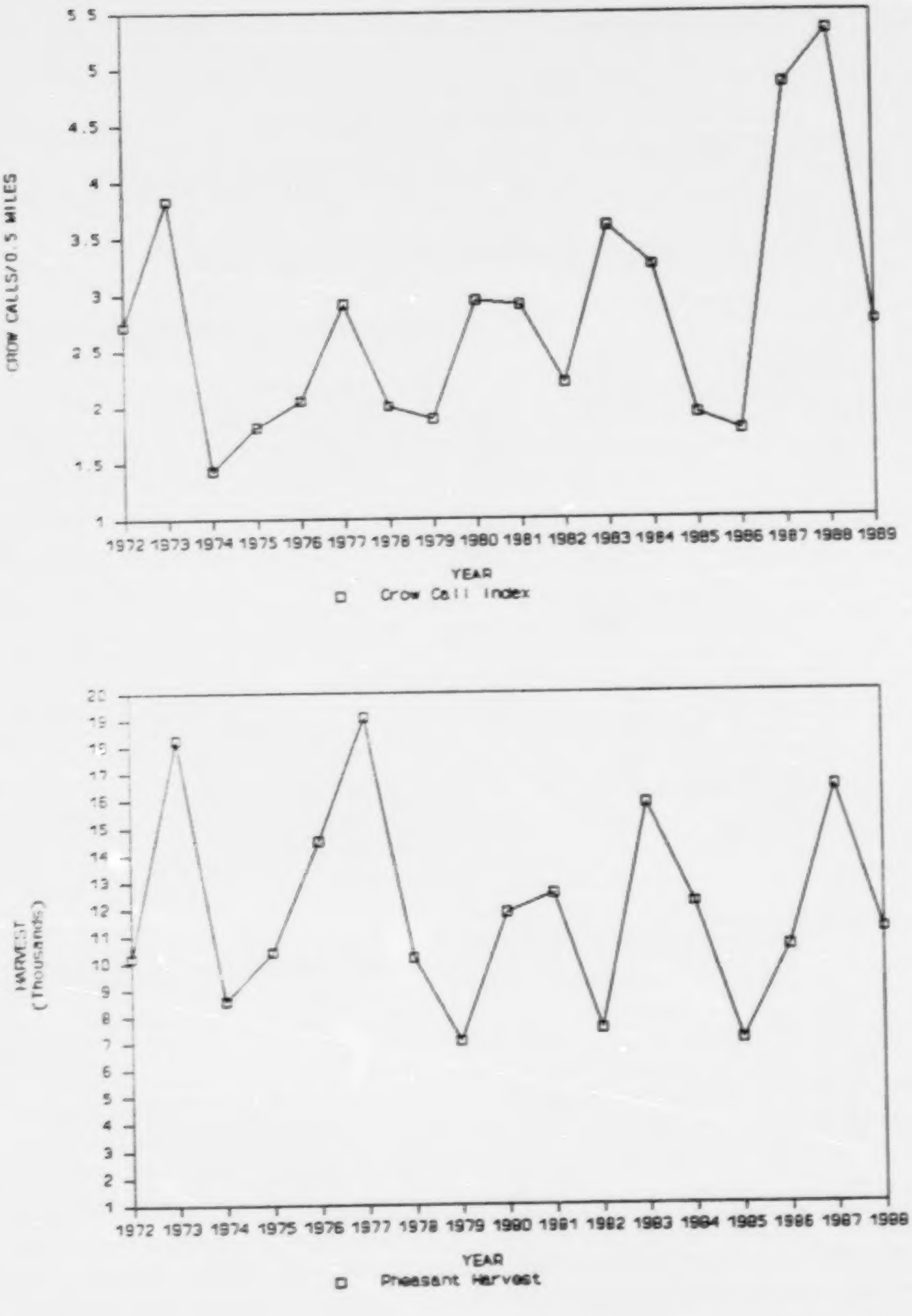


Fig. 48. Saskatchewan pheasant spring breeding population index vs. harvest, 1972 to 1989.

In order to keep prime pheasant habitat open for hunting, SPRC continues to urge pheasant hunters to seek permission to hunt and avoid vehicle abuse by hunting on foot. Landowners can post their land with conditional access signs promoting walk-in hunting provided free-of-charge by the department.

D. 1989 PHEASANT SEASONS

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Pheasants (Sask Residents Only May Hunt Cocks Only)	Zones 1 to 36, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Management Units; and starting Oct. 31, Elbow Wildlife Management Unit	Oct 4 - Nov 18	3 cocks daily 6 cocks possession
	WMZ 1 to 20, 24 and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units	Dec 4 - Dec 20	3 cocks daily 6 cocks possession

RUFFED GROUSE

A. REVIEW OF 1988 HUNTING SEASON

The 1988 harvest figure of 87,065 ruffed grouse was comparable to the 89,322 birds harvested in 1987 (Table 100). These harvest estimates are six times greater than the harvest recorded in 1984 (12,974 birds) when the population cycle was at its low point.

Table 100. Ruffed grouse hunting statistics for Saskatchewan, 1972 to 1988.

	Hunting Level				Hunting Success	
Year	Active Ruffed Grouse Hunters	Total Upland Bird Hunter Days	Upland Hunter Days/ Active Ruffed Grouse Hunter	Ruffed Grouse Harvest	Ruffed Grouse Harvested/Active Ruffed Grouse Hunter	Ruffed Grouse Harvested/Upland Hunter Day
1972	11,057	56,534	5.1	29,853	2.7	0.5
1973	9,102	53,275	5.9	12,743	1.4	0.2
1974[a]	7,477	37,801	5.1	14,205	1.9	0.4
1975[a]	12,091	48,161	4.0	36,274	3.0	0.8
1976[a]	14,782	86,525	5.9	83,805	5.7	1.0
1977[a]	17,757	93,496	5.3	94,353	5.3	1.0
1978	17,042	72,380	4.2	94,203	5.5	1.3
1979	17,545	72,096	4.1	86,309	4.9	1.2
1980	18,363	75,578	4.1	91,514	5.0	1.2
1981	14,466	68,989	4.8	36,711	2.5	0.5
1982	10,215	50,382	4.9	16,886	1.7	0.3
1983	8,754	60,146	6.9	13,523	1.5	0.2
1984	6,706	44,854	6.7	12,974	1.9	0.3
1985	6,427	40,149	6.2	15,074	2.3	0.4
1986	10,147	74,900	7.4	47,978	4.7	0.6
1987	11,170	83,179	7.4	89,322	8.0	1.1
1972-1987 Average	12,069	63,652	5.2	48,482	4.1	0.8
1988	13,012	72,059	5.5	87,065	6.7	1.2
% Change						
1988 from 1987	+16.5%	-13.4%	-25.7%	-2.5%	-16.3%	+13.1%
1988 from Average	+7.8%	+13.2%	+5.8%	+79.6%	+63.4%	+61.3%

[a] Data published previously for these years was inaccurate.

Active ruffed grouse hunters increased by 17% to 13,012 from the 11,170 recorded in 1987 (Table 100). Hunter success decreased in 1988 to 6.7 birds per hunter from the 16 year high of 8.0 birds per hunter in 1987, but remained 63% higher than the long-term average. Harvest in the Parkland WMZ increased from 21% of the provincial harvest in 1987 to 29% in 1988 (Table 101). The Forest Fringe and Forest WMZ comprised 25% and 42% of the total harvest, respectively which was similar to 1987 estimates (Tables 101 and 102). The chronology of ruffed grouse harvest is illustrated in Fig. 49.

Table 101. Ruffed grouse hunting statistics for Saskatchewan by ecological divisions, 1988 vs 1987.

	Grassland WMZ 1-14		Farmland WMZ 15-30		Parkland WMZ 31-47		Forest Fringe WMZ 48-55		Forest WMZ 56-73		Province[a] Zones 1-73	
	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987
Ruffed Grouse Harvest (% of Total)	385 (0.4)	650 (0.7)	2,725 (3.1)	3,263 (3.7)	25,354 (29.2)	18,649 (20.9)	21,824 (25.2)	22,238 (24.9)	36,427 (42.0)	44,437 (49.7)	87,065 (100)	89,322 (100)
Harvest Pressure (kill/sq km)	.006	.010	.030	.036	.258	.189	.831	.847	.221	.269	.195	.200
All Upland Bird Hunter Days (% of Total)	13,540 (18.8)	21,090 (25.4)	23,363 (32.4)	31,225 (37.6)	14,963 (20,8)	12,472 (15.0)	6,893 (1.2)	6,613 (8.0)	13,076 (18.2)	11,574 (13.9)	72,059 (100)	83,179 (100)
Species Hunter Days (% of Total)	109 (0.5)	273 (1.5)	1,015 (4.7)	1,142 (6.1)	7,273 (33.6)	5,244 (27.9)	5,014 (23.3)	4,588 (24.4)	8,162 (37.8)	7,577 (40.3)	21,688 (100)	18,824 (100)
Hunter Pressure (Upland Hunter Days/sq km)	.209	.325	.257	.344	.152	.127	.262	.252	.079	.070	.161	.186
Hunter Success (Kill/Upland Hunter Day)	.028	.031	.117	.104	1.69	1.50	3.17	3.36	2.79	3.84	1.21	1.07
Hunter Success (Kill/Species Hunter Day)	3.53	2.38	2.68	2.86	3.49	3.56	4.33	4.85	4.46	5.86	4.01	4.75

[a] Northern Shield Division WMZ 74-76 excluded from calculations because of insignificance to ruffed grouse hunting (0.06% of harvest in 1988).

Table 102. Ruffed grouse harvest and hunting pressure by Wildlife Management Zone, 1988.

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
1	56	0.06	27	0.007	0.0	2,475	14
2	83	0.10	56	0.008	0.0	2,568	21
3	0	0.00	0	0.000	0.0	21	0
4	69	0.08	35	0.009	0.0	2,908	35
5	56	0.06	28	0.009	0.0	1,877	14
6	14	0.02	21	0.003	0.0	309	3
7	0	0.00	0	0.000	0.0	83	0
8	7	0.01	7	0.002	0.0	279	3
9	0	0.00	14	0.000	0.0	504	0
10	35	0.04	14	0.010	0.1	722	3
11	35	0.04	7	0.035	0.1	263	3
12	7	0.01	7	0.020	0.1	152	3
13	23	0.03	58	0.006	0.0	634	8
14	1	0.00	41	0.000	0.0	746	1
GR	305	0.44	313	0.006	0.0	13,540	109
15	71	0.08	59	0.011	0.0	6,895	28
16	71	0.08	79	0.013	0.0	1,619	37
17	524	0.60	234	0.137	0.4	1,220	195
18	63	0.07	62	0.008	0.0	2,164	18
19	174	0.20	120	0.019	0.1	3,161	55
20	382	0.44	210	0.069	0.5	799	145
21	471	0.54	308	0.056	0.2	2,297	197
22	2	0.00	31	0.000	0.0	463	0
23	56	0.07	90	0.010	0.1	794	21
24	14	0.02	35	0.003	0.0	837	10
25	14	0.02	35	0.002	0.0	450	14
26	0	0.00	14	0.000	0.0	221	0
27	0	0.00	7	0.000	0.0	135	0
28	42	0.05	28	0.031	0.3	136	14
29	76	0.09	83	0.014	0.1	1,039	49
30	764	0.88	350	0.105	0.7	1,134	231
FA	2,725	3.14	1,743	0.030	0.1	23,363	1,015
31	53	0.06	20	0.021	0.1	790	14
32	53	0.06	45	0.019	0.1	385	19
33	3,042	3.51	521	0.783	2.0	1,538	819
34	858	0.99	237	0.159	1.1	788	267
35	757	0.87	217	0.290	1.2	612	263
36	1,030	1.19	343	0.199	0.9	1,168	444
37	4,747	5.47	815	0.420	2.7	1,748	1,196
38	868	1.00	234	0.135	1.9	454	269
39	4,091	4.72	747	0.538	2.3	1,808	1,204
40	745	0.86	247	0.138	1.0	721	238
41	173	0.20	130	0.024	0.5	362	56
42	2,364	2.72	534	0.319	2.9	823	624
43	1,743	2.01	470	0.257	2.2	788	512
44	1,042	1.20	350	0.228	1.4	737	294
45	751	0.87	308	0.098	0.9	875	235
46	586	0.68	161	0.098	1.9	303	165
47	2,450	2.82	555	0.428	2.3	1,063	654
FA	25,354	29.22	5,933	0.258	1.7	14,963	7,273
48	3,688	4.25	597	1.457	3.5	1,060	811
49	2,843	3.28	335	1.187	4.5	626	490
50	2,520	2.90	535	0.756	3.1	827	609
51	798	0.92	265	0.278	2.1	374	227
52	2,188	2.52	497	0.751	2.6	833	609
53	2,320	2.67	483	0.837	3.1	754	561
54	5,214	6.01	820	0.915	3.5	1,490	1,212
55	2,253	2.60	454	0.601	2.4	930	524
FF	21,824	25.15	3,986	0.831	3.2	6,893	5,041
56	9,372	10.80	1,284	1.983	4.2	2,251	1,912
57	2,698	3.11	542	0.816	3.6	749	549
58	1,529	1.76	240	0.681	2.7	566	319
59	3,085	3.56	610	0.524	2.7	1,162	743
60	523	0.60	178	0.136	2.3	230	118
61	167	0.19	49	0.055	2.7	62	35
62	2,286	2.63	282	0.612	3.1	740	395
63	2,113	2.44	675	0.373	1.3	1,646	647
64	1,187	1.37	251	0.335	2.4	494	274
65	749	0.86	220	0.115	1.1	686	239
66	1,978	2.28	244	0.175	2.9	675	398
67	7,659	8.83	1,283	0.883	3.1	2,467	1,692
68	1,534	1.77	258	0.369	3.0	504	430
69	896	1.03	237	0.116	2.2	414	235
70	257	0.30	49	0.030	2.4	108	38
71	14	0.02	28	0.001	0.7	21	10
72	111	0.13	69	0.006	1.3	87	38
73	271	0.31	69	0.004	1.3	215	90
FD	36,427	41.98	6,570	0.221	2.8	13,076	8,162
74	16	0.02	24	0.000	1.5	10	7
75	35	0.04	14	0.001	0.3	139	14
76	0	0.00	7	0.000	0.0	21	0
MS	50	0.06	45	0.000	0.3	170	21
>>>>>>>>>>>>>>>>>>>> T O T A L >>>>>>>>>>>>>>>>>>>>	86,766	100.00	18,590	0.138	1.2	72,005	21,620

- Hunter Days are based on all Upland Hunting.
- The Total Active Hunter value is NOT the true Provincial Total.

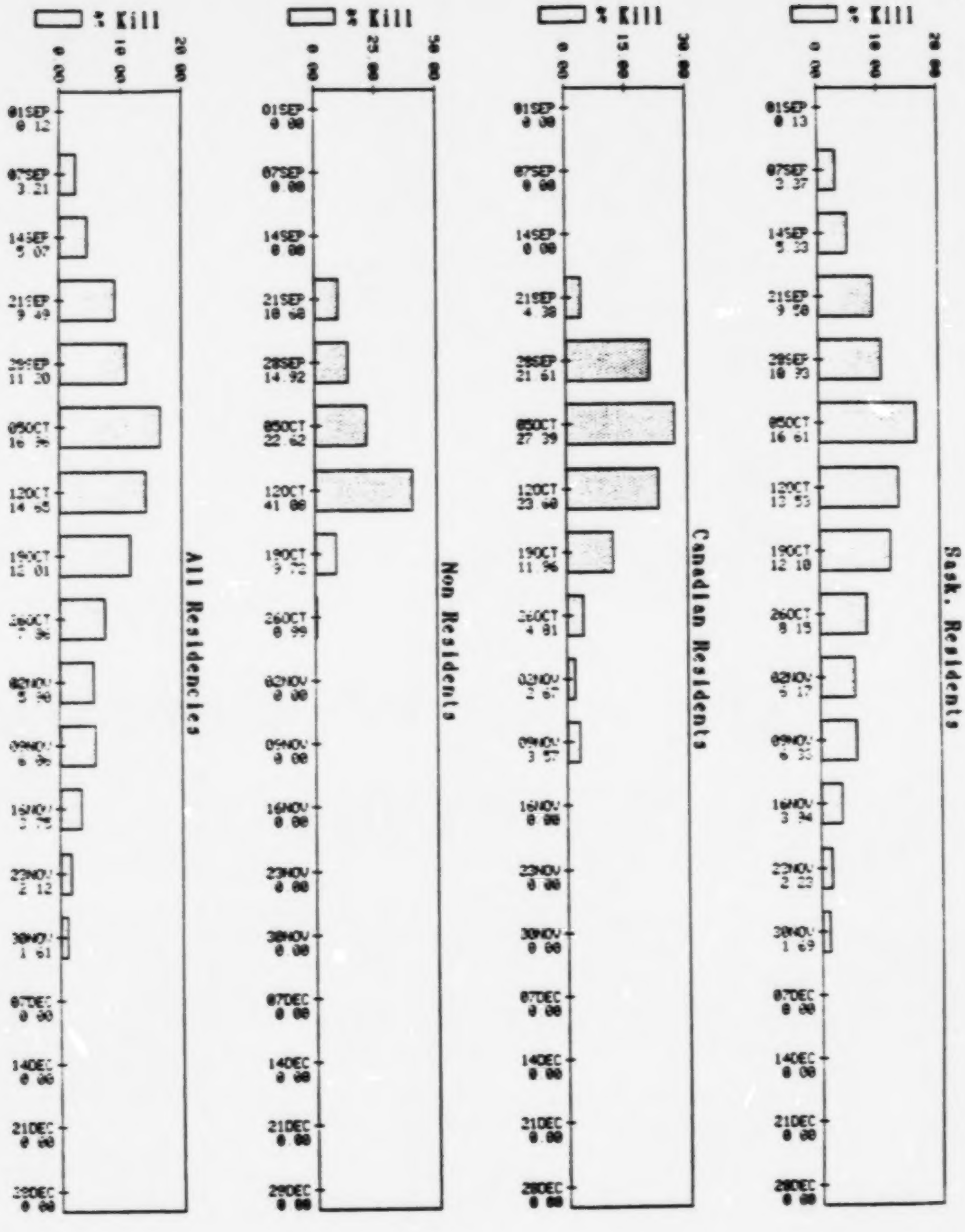


Fig. 49. Saskatchewan 1988 ruffed grouse harvest by residency and weekly interval.

WMZ 56 (Greenwater Park and Porcupine Forest) again ranked first in terms of ruffed grouse harvested per km^2 (Table 103) and showed the highest total harvest in an individual WMZ (11% of provincial harvest). Thirty-two percent of the provincial harvest took place in the two-week period from October 5 to October 18, 1988 (Fig. 49).

Table 103. Five important ruffed grouse harvest zones in Saskatchewan, 1986 to 1988.

	1986			1987			1988		
Rank[a]	Wildlife Mgmt. Zone	Ruffed Grouse Harvest/ Sq. km Total Area	% of Provincial Harvest	Wildlife Mgmt. Zone	Ruffed Grouse Harvest/ Sq. km Total Area	% of Provincial Harvest	Wildlife Mgmt. Zone	Ruffed Grouse Harvest/ Sq. km Total Area	% of Provincial Harvest
1st	56	.926	9.15	56	1.577	8.34	56	1.983	10.80
2nd	48	.680	2.60	53	1.323	4.10	48	1.457	4.25
3rd	55	.578	4.54	50	1.268	4.73	49	1.187	3.28
4th	53	.542	3.15	67	1.241	12.05	54	0.915	6.01
5th	49	.493	2.47	54	0.909	5.80	67	0.883	8.83
Total Leading 5 Zones		.677	22.91	Leading 5 Zones	.124	35.02	Leading 5 Zones	1.19	33.17

[a] Ranked according to harvest density based on zone area in km^2; native habitat areas not yet available for 76 Wildlife Management Zones.

B. POPULATION STATUS

1. 1988 Ruffed Grouse Reproduction

The 1988 provincial reproduction index was determined to be 2.93 juveniles per adult based on a sample of 704 bird wings collected from the 1988 harvest (Table 104). This estimate was 27% below the reproductive index for 1987, but was above the long-term average of 2.77 juveniles per adult.

As ruffed grouse wings have only been collected since 1979, the duration of higher than average reproduction is unknown. However, based upon the apparent 10-year cycle in Saskatchewan's ruffed grouse populations, good reproduction was expected to continue for another year.

2. 1989 Breeding Population Status

The 1989 spring drumming surveys indicate stable to slightly decreased populations in the Forest Fringe and Parkland WMZ. The Forest index was similar to the 1988 survey on 10 comparable survey routes (Table 105).

Table 104. Ruffed grouse reproductive index (juveniles/adult), 1979 to 1988[a].

Year	Farmland	Parkland	Forest Fringe (WMZ 48-55)	Forest	Province
1979	1.96	2.21	N/A[b]	3.00	2.43
1980	1.03	1.39	N/A	1.84	1.41
1981	1.19	3.12	N/A	2.77	2.30
1982	1.23[c]	2.43	N/A	3.80[c]	2.28
1983	1.14[c]	2.29	N/A	4.80	2.51
1984	1.90[c]	1.75	3.17[c]	1.93	1.97
1985	1.11[c]	3.62	3.24	3.77	3.45
1986	3.08[c]	4.27	3.00	3.22	3.37
1987	0.60[c]	3.92	3.28	4.37	4.02
1988	5.00[c]	2.35	3.50	3.14	2.93
1979-1988 Average	1.39	2.52	3.25[d]	3.28	2.77
% Change					
1988 from 1987	-88%	-40%	+6%	-28%	-27%
1988 from Average	+72%	-7%	+7%	-4%	+6%

[a] Based on wing samples from harvest.

[b] N/A - not available.

[c] Sample size less than 50 wings.

[d] 1984-88 average.

Table 105. Ruffed grouse breeding population surveys, spring 1989.

Wildlife Management Zone	Survey Route	No. of Stops	Drums Heard/Survey Stop 1986	1987	1988	1989
21	Bulyea	20	1.20	—	1.44	0.60
33	Moose Mountain Park	18	—	0.80	1.33	1.61
37	Duck Mountain Park	20	1.85	1.55	1.80	3.50
38	Bryce Lake	15	0.73	0.60	0.33	0.73
39	Parkerview	20	0.25	0.95	2.00	0.25
43	Blue Jay Tower	12	—	0.60	1.28	2.41
46	Battle River - Freemont	20	0.48	1.33	1.52	0.95
47	Sandwith	15	0.87	0.47	1.53	2.93
PARKLAND			0.88	0.86	1.42	1.72
					Difference:[a]	+22%
48	Rockford	14	1.29	—	2.07	0.52
49	Akosane	12	—	0.15	—	0.33
54	Chitek	20	—	0.80	0.20	0.35
55	St. Cyr Lake	22	0.87	1.03	1.00	1.13
FOREST FRINGE				1.09	0.75	1.180.63
					Difference:	-29%
56	McBride Lake	15	1.00	1.67	1.73	1.20
56	Greenwater	24	0.87	0.33	1.22	0.33
57	Woody Road South	20	1.88	1.48	3.35	0.85
59	Fir River Road	20	1.10	—	1.25	1.40
60	Squaw Rapids East	20	0.72	1.28	0.85	0.60
63	Torch River	15	—	1.20	0.93	0.80
53 and 66	Tote Road	20	3.55	3.20	1.70	2.60
68	Railroad Grade	20	1.45	0.65	0.80	0.65
66 and 69	Green Lake North	17	—	1.45	1.40	2.11
69	Mistohay	20	2.80	1.05	0.60	0.75
FOREST			1.61	1.35	1.39	1.14
					Difference:	-21%
PROVINCE	24 survey routes		1.27	1.01	1.34	1.20
					Difference:	-10%

[a] Percent difference in 1989 ruffed grouse drums compared to 1987; based on comparable survey routes.

The provincial breeding index of 1.20 drums heard per survey stop is 10% below 1988 figures for comparable surveys. Hunters indicated that 1988 fall populations were similar to 1987 levels in the Forest Fringe and Forest WMZ.

In 1989, the Parkland area (WMZ 31-47) exhibited an apparent population increase (22%) and the drumming index of 1.72 drums per survey stop is now higher than the Forest index. The Duck Mountain route in WMZ 37 had the highest number of drumming males at 3.35 per stop.

Figure 50 and Appendix 23 illustrate the relationship apparent between hunter harvest and cyclic provincial ruffed grouse populations over the past 17 years. Populations increased dramatically in 1986 and 1987, and remained constant in 1988. Hunters should see good numbers of ruffed grouse in the fall of 1989 throughout the Forest Fringe, Forest and Parkland WMZ. Populations appear to be near their peak in the Parklands.

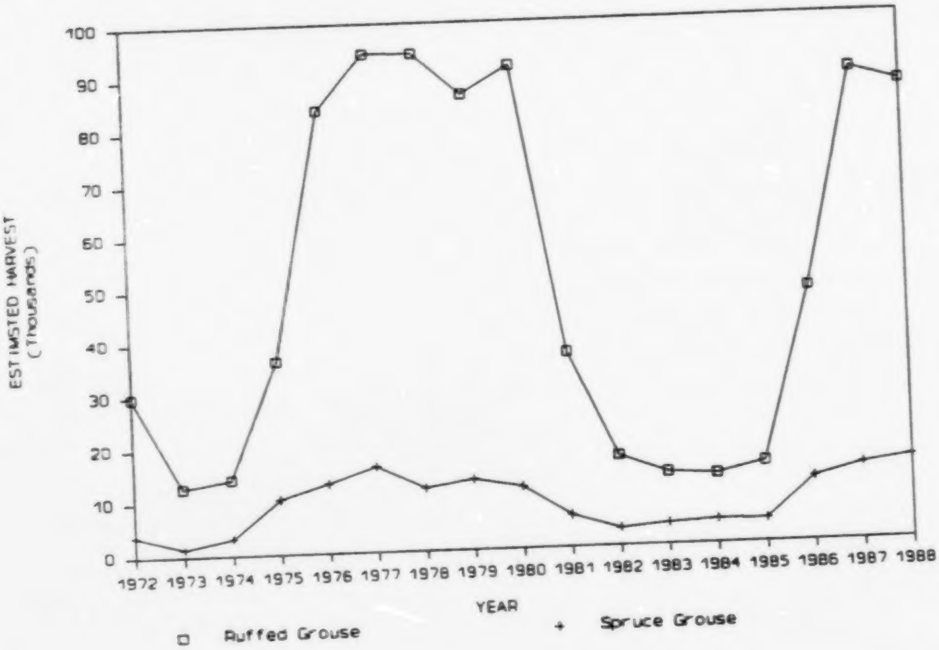


Fig. 50. Saskatchewan ruffed and spruce grouse harvest, 1972 to 1988.

C. 1989 MANAGEMENT OBJECTIVES

The 1988 ruffed grouse harvest was comparable to that of 1987. Spring surveys in 1989 show stable populations in the Forest and Forest Fringe. Increased harvest in the past two years indicate the population may have peaked in these ecozones. Parkland populations have increased to levels equal to or slightly higher populations in the northern ecozones, suggesting that these populations are reaching peak levels.

The 1987 season saw an increase in bag limits throughout the Forest Fringe and Forest WMZ. Proposed seasons for 1989 are similar to those of 1988 with liberal bag limits and calendar adjustments. In the Grasslands, Farmlands and Parklands the proposed season opening coincides with the Hungarian partridge and sharp-tailed grouse opening date (Sept. 20). To maintain the traditional overlap between ruffed grouse seasons and big game seasons in the Forest and Shield, proposed hunting season dates are September 6 - December 2. Only the early moose season in WMZ 70-76, and the last week of the late elk season in WMZ 53 are not encompassed by these dates.

D. 1989 RUFFED GROUSE SEASONS

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Ruffed Grouse (All Hunters)	WMZ 1 to 47, including Last Mountain Lake Wildlife Management Unit; Duck Mountain and Moose Mountain Provincial Parks; and starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 18	5 daily 10 possession
	WMZ 48 to 76, including Clearwater River, Greenwater Lake, Lac la Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	10 daily 20 possession

SPRUCE GROUSE

A. REVIEW OF 1988 HUNTING SEASON

The 1988 spruce grouse harvest of 15,332 birds was 7% higher than the 1987 harvest. Seventy-five percent (75%) of the 3,587 active hunters were successful and 4,061 recreation days were provided. WMZ 63 and 67 provided 30% of the harvest, which is comparable to 1987 estimates. Table 106 outlines spruce grouse hunting activity and harvest in 1988 while the chronology of the harvest by weekly intervals is demonstrated in Fig. 51.

B. POPULATION STATUS

Spring surveys and wing collections are not conducted for spruce grouse, but this species is believed to cycle in a fashion similar to ruffed grouse populations and spruce grouse are taken casually by ruffed grouse hunters (Fig. 51, Appendix 23).

C. 1989 MANAGEMENT OBJECTIVES

The season opening date and spruce grouse bag limit for WMZ 43 (the only Parkland WMZ open for spruce grouse hunting) are similar to those for ruffed grouse in this WMZ in order to simplify regulations for local upland bird hunters. The sharp-tailed grouse and Hungarian partridge seasons are also scheduled to open September 20 in WMZ 43. The season in WMZ 48-76 will coincide with the ruffed grouse season opening on September 6. The bag limit of ten birds daily, similar to the ruffed grouse bag limits will be maintained in the Forest Fringe, Forest and Northern Shield WMZ.

D. 1989 SPRUCE GROUSE SEASONS

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
	WMZ 43	Sept. 20 - Nov. 18	5 daily 10 possession
	WMZ 48 to 76, including Clearwater River, Lac la Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	10 daily 20 possession

Table 106. Saskatchewan spruce grouse harvest and hunting pressure by Wildlife Management Zone, 1988.

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
1	0	0.00	0	0.000	0.0	2,475	0
2	0	0.00	0	0.000	0.0	2,568	0
3	0	0.00	0	0.000	0.0	21	0
4	0	0.00	0	0.000	0.0	2,908	0
5	0	0.00	0	0.000	0.0	1,877	0
6	0	0.00	0	0.000	0.0	309	0
7	0	0.00	0	0.000	0.0	83	0
8	0	0.00	0	0.000	0.0	279	0
9	0	0.00	0	0.000	0.0	504	0
10	0	0.00	0	0.000	0.0	722	0
11	0	0.00	0	0.000	0.0	263	0
12	0	0.00	0	0.000	0.0	152	0
13	0	0.00	0	0.000	0.0	634	0
14	0	0.00	0	0.000	0.0	746	0
GR	0	0.00	0	0.000	0.0	13,540	0
15	0	0.00	0	0.000	0.0	6,895	0
16	0	0.00	0	0.000	0.0	1,619	0
17	0	0.00	0	0.000	0.0	1,220	0
18	0	0.00	0	0.000	0.0	2,164	0
19	0	0.00	0	0.000	0.0	3,161	0
20	0	0.00	0	0.000	0.0	799	0
21	0	0.00	0	0.000	0.0	2,297	0
22	0	0.00	0	0.000	0.0	463	0
23	0	0.00	0	0.000	0.0	794	0
24	0	0.00	0	0.000	0.0	837	0
25	0	0.00	0	0.000	0.0	450	0
26	0	0.00	0	0.000	0.0	221	0
27	0	0.00	0	0.000	0.0	135	0
28	0	0.00	0	0.000	0.0	136	0
29	0	0.00	0	0.000	0.0	1,039	0
30	0	0.00	0	0.000	0.0	1,134	0
FA	0	0.00	0	0.000	0.0	23,363	0
31	0	0.00	0	0.000	0.0	790	0
32	0	0.00	0	0.000	0.0	385	0
33	0	0.00	0	0.000	0.0	1,538	0
34	0	0.00	0	0.000	0.0	788	0
35	0	0.00	0	0.000	0.0	612	0
36	0	0.00	0	0.000	0.0	1,168	0
37	0	0.00	0	0.000	0.0	1,748	0
38	0	0.00	0	0.000	0.0	454	0
39	0	0.00	0	0.000	0.0	1,808	0
40	0	0.00	0	0.000	0.0	721	0
41	0	0.00	0	0.000	0.0	362	0
42	0	0.00	0	0.000	0.0	823	0
43	162	1.06	140	0.024	0.2	788	65
44	0	0.00	0	0.000	0.0	737	0
45	0	0.00	0	0.000	0.0	875	0
46	0	0.00	0	0.000	0.0	303	0
47	0	0.00	0	0.000	0.0	1,063	0
PA	162	1.06	140	0.002	0.0	14,963	65
48	166	1.08	65	0.066	0.2	1,060	40
49	47	0.31	82	0.028	0.1	626	18
50	413	2.70	236	0.124	0.5	827	118
51	75	0.49	110	0.026	0.2	374	29
52	199	1.30	140	0.068	0.2	833	69
53	338	2.21	230	0.122	0.5	754	126
54	186	1.21	96	0.033	0.1	1,490	35
55	442	2.88	192	0.118	0.5	930	147
FF	1,867	12.18	1,152	0.071	0.3	6,893	582
56	600	3.91	267	0.127	0.3	2,251	183
57	526	3.43	230	0.159	0.7	749	139
58	255	1.66	133	0.114	0.5	566	86
59	940	6.13	349	0.160	0.8	1,162	288
60	351	2.29	135	0.091	1.5	230	72
61	83	0.54	31	0.027	1.3	62	20
62	1,284	8.38	230	0.344	1.7	740	305
63	2,903	18.94	572	0.513	1.8	1,646	706
64	664	4.33	147	0.187	1.3	494	159
65	1,334	8.71	270	0.205	1.9	686	287
66	741	4.83	161	0.066	1.1	675	180
67	1,620	10.57	586	0.187	0.7	2,467	546
68	55	0.36	51	0.013	0.1	504	20
69	449	2.93	147	0.058	1.1	414	128
70	256	1.67	44	0.030	2.4	108	51
71	27	0.18	31	0.002	1.3	21	13
72	235	1.54	65	0.013	2.7	87	37
73	596	3.89	89	0.013	2.8	215	112
FO	12,920	84.29	3,540	0.078	1.0	13,076	3,329
74	31	0.20	17	0.001	3.0	10	4
75	305	1.99	14	0.005	2.2	139	73
76	42	0.27	21	0.001	2.0	21	7
NS	378	2.46	52	0.002	2.2	170	84
>>>>>>>>>>>>>>>>>>>>>> T O T A L >>>>>>>>>>>>>>>>>>>>>>	15,327	100.00	4,884	0.024	0.2	72,005	4,061

* Hunter Days are based on all Upland Hunting.
* The Total Active Hunter value is NOT the true Provincial Total.

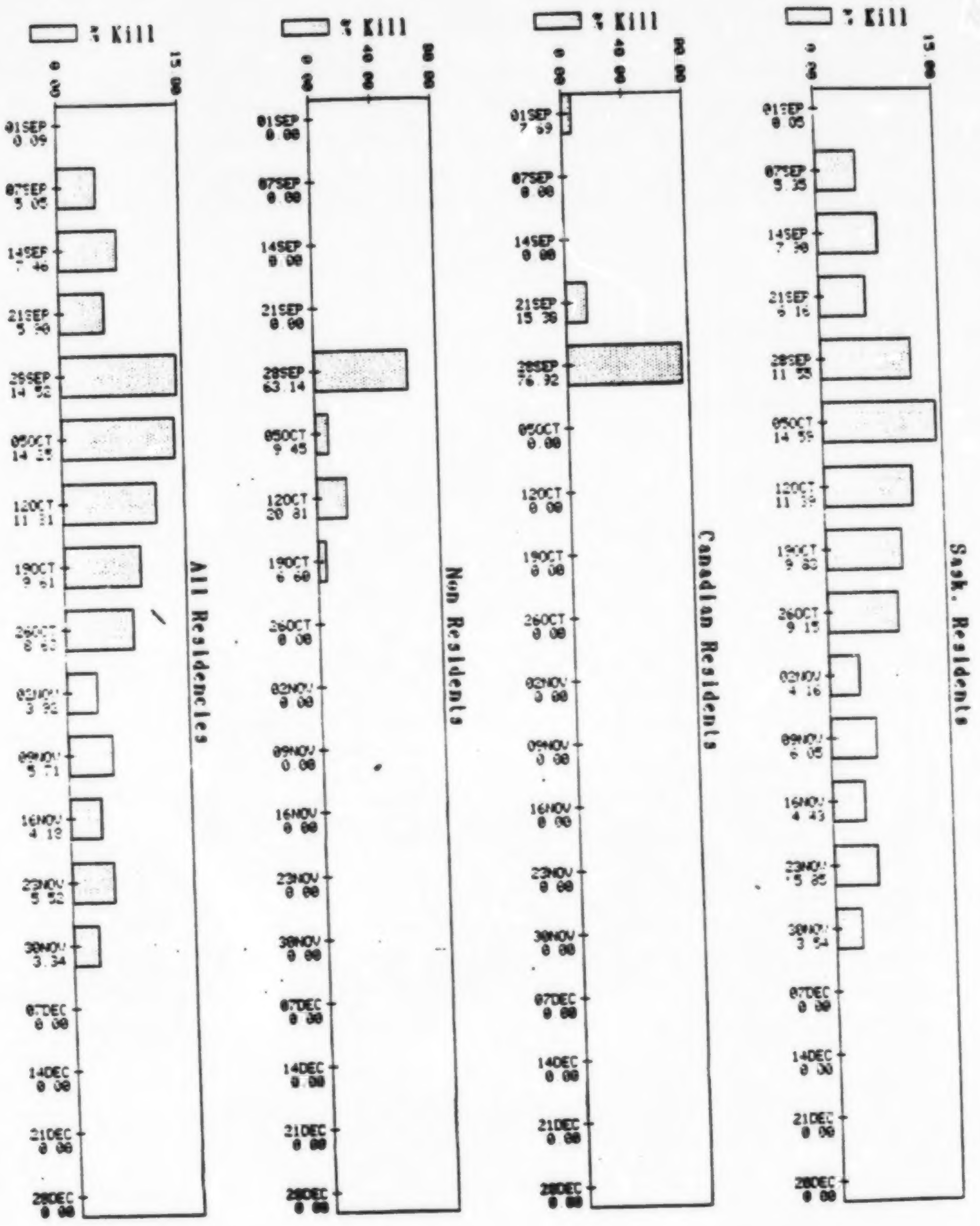


Fig. 51. Saskatchewan 1988 spruce grouse harvest by residency and weekly interval.

PTARMIGAN

A. REVIEW OF 1988 HUNTING SEASON

The 1988 questionnaire data indicated a harvest of 153 ptarmigan in WMZ 73-76. There were 56 active hunters who averaged 2.73 birds per hunter (Table 107). About 42 hunter recreation days were provided indicating that some hunters hunted only a half day or less. Non-residents did not participate in ptarmigan hunting according to questionnaire results. The chronology of the 1988 harvest is portrayed in Fig. 52. Eighty percent of the harvest occurred during the period November 30 to December 21.

B. POPULATION STATUS

Prior to 1988, little information was available on Saskatchewan ptarmigan distribution, numbers or utilization by sport hunters. Migrations are known to occur into the Deschambault Lake area and into the White Lake area near the Reindeer River. Most of the ptarmigan range is relatively inaccessible and utilization is largely opportunistic by big game hunters and trappers. The ptarmigan was included in the 1987 bird hunter questionnaire to collect some baseline data regarding harvest, hunter days provided and hunter interest.

C. 1989 PTARMIGAN SEASONS

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Ptarmigan (All Hunters)	WMZ 61-66, 69-76, including Clearwater River and Lac la Ronge Provincial Park	Nov. 13, 1989 to March 31, 1990	10 daily 20 possession

Table 107. Ptarmigan harvest and hunting pressure by Wildlife Management Zone, 1988.

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
1	0	0.00	0	0.000	0.0	2,475	0
2	0	0.00	0	0.000	0.0	2,568	0
3	0	0.00	0	0.000	0.0	21	0
4	0	0.00	0	0.000	0.0	2,908	0
5	0	0.00	0	0.000	0.0	1,877	0
6	0	0.00	0	0.000	0.0	309	0
7	0	0.00	0	0.000	0.0	83	0
8	0	0.00	0	0.000	0.0	279	0
9	0	0.00	0	0.000	0.0	504	0
10	0	0.00	0	0.000	0.0	722	0
11	0	0.00	0	0.000	0.0	263	0
12	0	0.00	0	0.000	0.0	152	0
13	0	0.00	0	0.000	0.0	634	0
14	0	0.00	0	0.000	0.0	746	0
GR	0	0.00	0	0.000	0.0	13,540	0
15	0	0.00	0	0.000	0.0	6,895	0
16	0	0.00	0	0.000	0.0	1,619	0
17	0	0.00	0	0.000	0.0	1,220	0
18	0	0.00	0	0.000	0.0	2,169	0
19	0	0.00	0	0.000	0.0	3,161	0
20	0	0.00	0	0.000	0.0	799	0
21	0	0.00	0	0.000	0.0	2,297	0
22	0	0.00	0	0.000	0.0	463	0
23	0	0.00	0	0.000	0.0	794	0
24	0	0.00	0	0.000	0.0	837	0
25	0	0.00	0	0.000	0.0	450	0
26	0	0.00	0	0.000	0.0	221	0
27	0	0.00	0	0.000	0.0	135	0
28	0	0.00	0	0.000	0.0	136	0
29	0	0.00	0	0.000	0.0	1,039	0
30	0	0.00	0	0.000	0.0	1,139	0
FA	0	0.00	0	0.000	0.0	23,363	0
31	0	0.00	0	0.000	0.0	790	0
32	0	0.00	0	0.000	0.0	385	0
33	0	0.00	0	0.000	0.0	1,538	0
34	0	0.00	0	0.000	0.0	788	0
35	0	0.00	0	0.000	0.0	612	0
36	0	0.00	0	0.000	0.0	1,168	0
37	0	0.00	0	0.000	0.0	1,748	0
38	0	0.00	0	0.000	0.0	454	0
39	0	0.00	0	0.000	0.0	1,808	0
40	0	0.00	0	0.000	0.0	721	0
41	0	0.00	0	0.000	0.0	362	0
42	0	0.00	0	0.000	0.0	823	0
43	0	0.00	0	0.000	0.0	788	0
44	0	0.00	0	0.000	0.0	737	0
45	0	0.00	0	0.000	0.0	875	0
46	0	0.00	0	0.000	0.0	303	0
47	0	0.00	0	0.000	0.0	1,063	0
PA	0	0.00	0	0.000	0.0	14,963	0
48	0	0.00	0	0.000	0.0	1,060	0
49	0	0.00	0	0.000	0.0	626	0
50	0	0.00	0	0.000	0.0	827	0
51	0	0.00	0	0.000	0.0	374	0
52	0	0.00	0	0.000	0.0	833	0
53	0	0.00	0	0.000	0.0	754	0
54	0	0.00	0	0.000	0.0	1,490	0
55	0	0.00	0	0.000	0.0	930	0
FF	0	0.00	0	0.000	0.0	6,893	0
56	0	0.00	0	0.000	0.0	2,251	0
57	0	0.00	0	0.000	0.0	749	0
58	0	0.00	0	0.000	0.0	566	0
59	0	0.00	0	0.000	0.0	1,162	0
60	0	0.00	0	0.000	0.0	230	0
61	0	0.00	0	0.000	0.0	62	0
62	0	0.00	0	0.000	0.0	740	0
63	0	0.00	0	0.000	0.0	1,446	0
64	0	0.00	0	0.000	0.0	494	0
65	0	0.00	0	0.000	0.0	686	0
66	0	0.00	0	0.000	0.0	675	0
67	0	0.00	0	0.000	0.0	2,467	0
68	0	0.00	0	0.000	0.0	504	0
69	0	0.00	0	0.000	0.0	414	0
70	0	0.00	0	0.000	0.0	108	0
71	0	0.00	0	0.000	0.0	21	0
72	0	0.00	0	0.000	0.0	87	0
73	28	18.18	16	0.001	0.1	215	7
FO	28	18.18	24	0.000	0.0	13,076	7
74	0	0.00	0	0.000	0.0	10	0
75	76	50.00	16	0.001	0.6	139	24
76	49	31.82	16	0.001	2.3	21	10
NB	125	81.82	32	0.001	0.7	170	35
>>>>>>>>>>>>>>>>>>>>>> T O T A L >>>>>>>>>>>>>>>>>>>>>>	153	100.00	56	0.000	0.0	72,005	42

* Hunter Days are based on all Upland Hunting.
* The Total Active Hunter value is NOT the true Provincial Total.

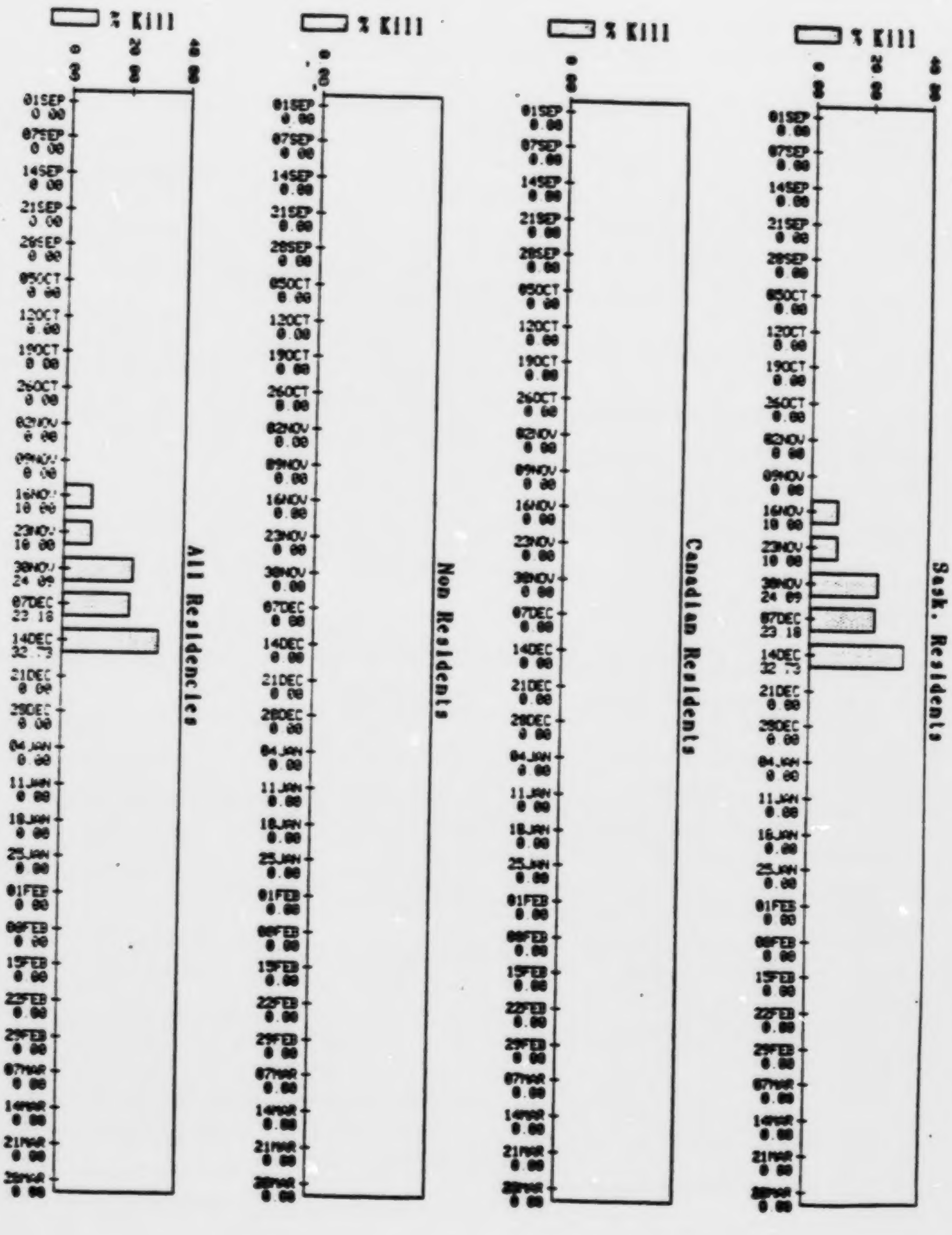


Fig. 52. Saskatchewan 1988 ptarmigan harvest by residency and weekly interval.

Appendix 1. 1988 big game hunting season regulations.

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
White-tailed Deer Primitive Weapons (Saskatchewan Residents Only)	Zones 1 to 8, 11 to 55, including Brokenshell No. 1 and No. 2, Elbow, Fort a la Corne, Great Bend, Lomond and Horsehide Lake Wildlife Management Units; Duck Mountain, Moose Mountain and Saskatchewan Landing Provincial Parks	Archery Sept. 5 - Oct. 15 Muzzleloading Rifles Oct. 3 - Oct. 15	one white-tailed deer, either sex	• An unsuccessful archer or muzzleloader hunter may use his unfilled either-sex white-tailed deer licence in all white-tailed deer rifle seasons and the Shotgun-Archery-Muzzleloader areas of Zones 20 and 30 • Archery or muzzleloader hunters may purchase an additional antlerless white-tailed deer licence at department offices, valid only in the specified portion of Zones 11 and 14 during the archery and muzzleloader seasons. See map for details. • Second white-tailed deer either-sex licences are valid only in Zones 56 to 69. A separate licence is required. **Note: the opening date in Duck Mountain, Moose Mountain, Greenwater Lake, Meadow Lake and Saskatchewan Landing Provincial Parks and Bronson Forest Recreation Site is delayed until September 7.**
	Zones 9 and 10	Archery Sept. 12 - Oct. 15 Muzzleloading Rifles Oct. 3 - Oct. 15	one white-tailed deer, either sex	
	That portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta border	Archery Sept. 5 - Oct. 15 Muzzleloading Rifles Oct. 3 - Oct. 15	one antlerless white-tailed deer	
	Zones 56 to 69, including Leaf Lake Wildlife Management Unit; Greenwater Lake, Meadow Lake and Nipawin Provincial Parks; and Bronson Forest Recreation Site	Archery Sept. 5 - Oct. 15 Muzzleloading Rifles Sept. 19 - Oct. 15	two white-tailed deer, either sex	
	Zones 70 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Archery Sept. 5 - Oct. 15 Muzzleloading Rifles Sept. 19 - Oct. 15	one white-tailed deer, either sex	
White-tailed Deer Archery (Canadian Residents and Non-residents)	Zones 56 to 76, including Leaf Lake Wildlife Management Unit; Clearwater River, Greenwater Lake, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks and Bronson Forest Recreation Site	Sept. 5 - Oct. 15	one white-tailed deer, either sex	• An unsuccessful archer may use his unfilled either-sex white-tailed deer licence in all white-tailed deer seasons open to Canadian Residents and Non-residents. **Note: The opening date in Greenwater Lake and Meadow Lake Provincial Parks and Bronson Forest Recreation Site is delayed until September 7.**
White-tailed Deer (Saskatchewan Residents, Canadian Residents and Non-residents)	Zones 56 to 61, 65, 66 and 69, including Leaf Lake Wildlife Management Unit; and Greenwater Lake, Meadow Lake and Nipawin Provincial Parks	Oct. 3 - Oct. 15 & Nov. 7 - Dec. 3	two white-tailed deer, either sex	• Second white-tailed deer licences are valid only in Zones 56 to 69. A separate licence is required.
	Zones 62 to 64, 67 and 68, including Nipawin Provincial Park and Bronson Forest Recreation Site	Nov. 7 - Dec. 3	two white-tailed deer, either sex	
	Zones 70 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Aug. 29 - Sept. 17 & Nov. 7 - Nov. 26	one white-tailed deer, either sex	
White-tailed Deer (Saskatchewan Residents and Canadian Residents)	Zones 1 to 15, 18 to 30, 36 and 40 to 55, including Brokenshell No. 1 and No. 2, Cookson, Estevan-Cambria, Elbow, Fort a la Corne, Horsehide Lake, Last Mountain Lake and Lomond Wildlife Management Units; and Saskatchewan Landing Provincial Park	Sask. Residents Nov. 21 - Dec. 3 Canadian Residents Nov. 28 - Dec. 3	one white-tailed deer, either sex	**Note: Primitive weapons only in Saskatchewan Landing Provincial Park.** • **Portions of Zones 20 and 30 are restricted to shotgun, archery, and muzzleloading rifle hunting only. Please refer to Wildlife Management Zone maps.** • **Hunters will be restricted to designated trails within the Cookson Wildlife Management Unit.** • **''Roads and Trails Only''. Hunters in Zones 15 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails.** • ''Antlered White-tailed Deer'' means any deer with an antler or antlers at least 10 centimetres in length as measured from the outside of the skull to the tip. • ''Antlerless White-tailed Deer'' means a doe or 1988 fawn. • For Zone 6 and the specified portion of Zones 11 and 14, hunters may purchase an additional antlerless white-tailed deer licence at department offices upon proof of possession of a mule deer licence for WMZ 6, 11 or 26 only.
	Zones 16, 17 and 31 to 35, including Moose Mountain Provincial Park	Sask. Residents Nov. 21 - Dec. 3	one white-tailed deer, either sex	
	Zone 38	Sask. Residents Nov. 21 - Dec. 3	one antlered white-tailed deer	
	Zones 37 and 39, including Duck Mountain Provincial Park	Sask. Residents Nov. 21 - Nov. 26	one antlered white-tailed deer	
		Sask. Residents Nov. 28 - Dec. 3	one white-tailed deer, either sex	
	Zone 6 (Zone 6 either-sex and antlerless mule deer licence holders only)	Specified mule deer seasons between Nov. 7 and Nov. 19 inclusive	one antlerless white-tailed deer	
	That portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta border (Zones 11 and 26 either-sex and antlerless mule deer licence holders only)	Specified mule deer seasons between Nov. 7 and Nov. 19 inclusive	one antlerless white-tailed deer	

Appendix 1. 1988 big game hunting season regulations (con't).

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Regular Elk (Saskatchewan Residents Only)	Zones 48, 49, 50 (north of Highway 55), 56 to 64, 66 and 69, including Leaf Lake Wildlife Management Unit and the northeast portion of Meadow Lake Provincial Park north of the 17th base line	Sept. 12 - Sept. 24	one antlered elk	• "Antlered Elk" means any elk having an antler or antlers at least 15 centimetres in length as measured from the outside of the skull to the tip • Successful applicants for a special elk licence are not eligible to purchase a regular elk licence **Note: Watch for signs in Meadow Lake Provincial Park.** **Note: Hunters will be restricted to designated trails within the Cookson Wildlife Management Unit.**
	Zone 53, including Cookson Wildlife Management Unit	Nov. 21 - Dec. 10	one elk, either sex	
Archery Moose (Saskatchewan Residents Only)	Zones 55 and 68 combined, including Bronson Forest Recreation Site	Sept. 19 - Oct. 1	one moose, either sex	• A regular bull-calf moose licence can be used to harvest any moose, by means of a bow during the archery season dates. Unfilled licences can also be used during the regular moose season but only to harvest a bull or 1988 calf moose.
Regular Moose (Saskatchewan Residents Only)	Zones 43, 48, 49, 53, 56 to 67 and 69, including Cookson and Leaf Lake Wildlife Management Units, and Nipawin Provincial Park	Oct. 3 - Oct. 8	one bull or one 1988 calf moose	• "Bull Moose" means a male moose one or more years old. "Cow Moose" means a female moose one or more years old. "Calf Moose" means any moose born in 1988. • Successful applicants for a special moose licence are not eligible to purchase a regular moose licence. • The antlers of bull moose and the lower jaw of calf moose must accompany the carcass
Early Season	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Aug. 29 - Sept. 17	one bull or one 1988 calf moose	
	Zones 74, 75 and 76	Aug. 29 - Oct. 8	one bull or one 1988 calf moose	
Late Season	Zones 43, 48, 49 and 56 to 59, including Leaf Lake Wildlife Management Unit	Nov. 21 - Dec. 3	one bull or one 1988 calf moose	
	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26, and Zones 53, 55 and 60 to 69, including Cookson Wildlife Management Unit; Nipawin Provincial Park, and Bronson Forest Recreation Site	Nov. 21 - Nov. 26	one bull or one 1988 calf moose	
	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Nov. 7 - Nov. 26	one bull or one 1988 calf moose	
Guided Moose & White-tailed Deer (Canadian Residents and Non-residents)	Zones 60, 61 and 62	Oct. 3 - Oct. 22 & Nov. 7 - Nov. 26	one bull or one 1988 calf moose	• Persons possessing a guided moose licence may also purchase a white-tailed deer licence and hunt during the same season dates • Services of a registered guide must be used for both species. • The antlers of bull moose and the lower jaw of calf moose must accompany the carcass • 400 Guided Moose Licences are available directly from outfitters. Quotas (in brackets) for each zone: 60(60), 61(115), 62(15), 69(15), 70(10), 71(45), 72(45), 73(10), 74(45), 75(10), 76(30).
	Zone 69	Sept. 5 - Sept. 17, Oct. 3 - Oct. 8 & Nov. 14 - Nov. 19	one bull or one 1988 calf moose	
	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Aug. 29 - Sept. 17, Oct. 3 - Oct. 8 & Nov. 7 - Nov. 26	one bull or one 1988 calf moose	
	Zones 74 to 76	Aug. 29 - Oct. 8	one bull or one 1988 calf moose	
Barren-ground Caribou (Saskatchewan Residents of Zone 76 Only)	Zone 76	Nov. 21 - Mar. 31, 1989	two barren-ground caribou, either sex; separate licences required	• "Resident of Zone 76" means a Saskatchewan resident who has lived in Zone 76 for three months immediately preceding the date of licence purchase
Bear (Saskatchewan Residents, Canadian Residents and Non-residents)	Zones 37, 42, 43 and 48 to 76, including Cookson, Horsehide Lake and Leaf Lake Wildlife Management Units	Aug. 29 - Oct. 15	two bear, either sex; separate licences required	• Unused spring bear licences are valid in the fall season.
	Clearwater River, Lac La Ronge, Meadow Lake, Nipawin and Duck Mountain Provincial Parks; and Bronson Forest Recreation Site	Sept. 7 - Oct. 15	two bear, either sex; separate licences required	
	Fort a la Corne Wildlife Management Unit only	Sept. 19 - Oct. 15	two bear, either sex; separate licences required	

Appendix 1. 1988 big game hunting season regulations (con't).

1988 Special Big Game Seasons

Saskatchewan Residents Only By Application and Draw

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Antelope (tentative)	Zones 1, 2, 4 to 14, 19 and 23 to 26, including Saskatchewan Landing Provincial Park	Oct. 27 - Nov. 19	one antelope, either sex	• Antelope licence quotas will be set after July aerial surveys. **Note: Primitive weapons only in Saskatchewan Landing Provincial Park.**
	Zone 3	Oct. 29 - Nov. 19	one antelope, either sex	
Antelope (Archery) (tentative)	Zones 1 to 15, 18, 19 and 23 to 26, including Saskatchewan Landing Provincial Park	Sept. 5 - Oct. 15	one antelope, either sex	• Antelope archery licences are valid in any open zone during the archery season only.
Special Elk	Zone 6 and that portion of Zone 7 east of Highway No. 271 and Grid Road No. 615	Oct. 31 - Nov. 5	one elk, either sex	• Licence quotas (in brackets) for each zone 6 and the east portion of 7 combined (50), the west portion of 7(100), 33(100), 43 and 50 combined (100), 48, 49, 56 and 57 combined (600), 54(50), 59(50), 63(50). **Note: Some portions of the Meeting Lake and Royal PFRA Pastures in Zone 54 will be closed to elk hunting. Watch for "No Hunting" signs**
	That portion of Zone 7 west of Highway No. 271 and Grid Road No. 615, including Cypress Hills (West Block) Provincial Park	Oct. 17 - Oct. 29	one elk, either sex	
	Zone 33, including Moose Mountain Provincial Park	Oct. 24 - Oct. 29	one elk, either sex	
	That portion of Zone 43 west of Highway No. 35 and north of Highway No. 335 and and that portion of Zone 50 south of Highway No. 55, including Fort a la Corne Wildlife Management Unit	Aug. 29 - Sept. 17	one elk, either sex	
	Zones 48, 49, 56 and 57 combined, including Greenwater Lake Provincial Park, Zone 59, and that portion of Zone 63 south of the Torch River	Oct. 17 - Oct. 22	one elk, either sex	
	That portion of Zone 54 south of Highway No. 3	Nov. 14 - Nov. 19	one elk, either sex	
Special Moose	Zone 6	Oct. 24 - Oct. 29	one moose, either sex	• Licence quotas (in brackets) for each zone: 6(25), 37(100), 50(200), 54(100), 48, 49 and 56 combined (300), 57(200), 58(200), 59(400), 60(200), 61(100), 62(50), 67(150), 47, 55 and 68 combined (75), Greenwater Lake Provincial Park (50). **Note: Some portions of the Meeting Lake and Royal PFRA Pastures in Zone 54 will be closed to moose hunting. Watch for "No Hunting" signs.**
	Zones 48, 49 and 56 combined; and Zones 57 to 62 and 67, including Leaf Lake Wildlife Management Unit	Sept. 12 - Sept. 17 & Nov. 7 - Nov. 19	one moose, either sex	
	Zone 37, including Duck Mountain Provincial Park; and that portion of Zone 47 north of Highway No. 3 and west of Highway No. 26 and Zones 55 and 68 combined, including Bronson Forest Recreation Site	Nov. 7 - Nov. 19	one moose, either sex	
	Greenwater Lake Provincial Park only	Nov. 7 - Nov. 19	one moose, either sex	
	Zone 50, including Fort a la Corne Wildlife Management Unit	Sept. 12 - Sept. 24 Nov. 7 - Nov. 19	one moose, either sex	
	Zone 54	Nov. 7 - Nov. 12	one moose, either sex	
Special Moose (Archery)	Zone 37, including Duck Mountain Provincial Park	Sept. 19 - Oct. 1	one moose, either sex	• The archery moose licence in Zone 37 is valid only during the archery season, licence quota (50).
Mule Deer	Zones 1, 3 to 8, 11, 12, 18, 19, 23 to 27, 29, 30 and 45, including Brokenshell No. 1 and Elbow Wildlife Management Units; and Cypress Hills (West Block) Provincial Park	Nov. 7 - Nov. 12	one mule deer, either sex	• Licence quotas (in brackets) for each zone 1(400), 2(700), 3(50), 4(150), 5(200), 6(250), 7(150), 8(50), 9(400), 10(700), 11(50), 12(100), 13(400), 14(800), 18(50), 19(300), 23(250), 24(150), 25(150), 26(150), 27(100), 29(150), 30(150), 45(100), 46(250). **Note: Primitive weapons only in Saskatchewan Landing Provincial Park.**
	Zone 46	Nov. 14 - Nov. 19	one mule deer, either sex	
	Zones 2, 9, 10, 13 and 14, including Saskatchewan Landing Provincial Park	Nov. 7 - Nov. 9 or Nov. 10 - Nov. 12	one mule deer, either sex	
Antlerless Mule Deer	Zones 1, 2, 4 to 6, 9 to 11, and 19	Nov. 14 - Nov. 19	one antlerless mule deer	• Licence quotas (in brackets) for each zone 1(300), 2(200), 4(150), 5(100), 6(100) 9(100) 10(1000), 11(100), 19(200). • "Antlerless Mule Deer" means a doe or a 1988 fawn

Appendix 1. 1988 big game hunting season regulations (con't).

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined, including Brokenshell No. 1 and No. 2, Elbow and Lomond Wildlife Management Units; and Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks	Sept. 5 - Oct. 15	one mule deer, either sex	• Licence quotas (in brackets) for each zone 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined (850), 9 and 10 combined (150) • Archery licences valid only in the archery season. **Note: The opening date in Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks is delayed until Sept. 7.**
	Zones 9 and 10 combined	Sept. 19 - Oct. 1	one mule deer, either sex	
Antlerless Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined, including Brokenshell No. 1 and No. 2, Elbow and Lomond Wildlife Management Units; and Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks	Sept. 5 - Oct. 15	one antlerless mule deer	• Licence quotas (in brackets) for each zone 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined (100), 9 and 10 combined (50) **Note: The opening date in Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks is delayed until Sept. 7.**
	Zones 9 and 10 combined	Sept. 19 - Oct. 1	one antlerless mule deer	
Mule Deer (Muzzleloading Rifles)	Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined, including Brokenshell No. 1 and Elbow Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks, and Zones 9 and 10 combined	Oct. 3 - Oct. 15	one mule deer, either sex	• Licence quotas (in brackets) for each zone 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined (200), 9 and 10 combined (50)
Antlerless Mule Deer (Muzzleloading Rifles)	Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined, including Brokenshell No. 1 and Elbow Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks, and Zones 9 and 10 combined	Oct. 3 - Oct. 15	one antlerless mule deer	• Licence quotas (in brackets) for each zone 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined (100), 9 and 10 combined (50)

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form.

Saskatchewan
Parks, Recreation
and Culture

Hon. Colin Maxwell
Minister

1988 Saskatchewan Big Game Draw Information Sheet

(Residents of Saskatchewan only)

Who's Eligible for the Draw

Only Saskatchewan residents and permanent members of the Armed Forces or RCMP who are stationed and residing in the province may apply.

Applicants must be 16 years of age or over, **on or before July 7, 1988** to apply. (Exception: In the Antlerless Mule Deer Draw only, applicants 12 to 15 years of age on or before July 7, 1988 may apply. See Antlerless Mule Deer section for more details.)

All applicants 17 years of age and younger and all first time hunters must hold a Firearm or Hunter Safety Certificate before applying.

Persons whose hunting rights are restricted for either a Wildlife Act conviction or a firearm accident as of July 7, 1988 are not eligible to apply.

How to Apply

Applying for the Big Game Draw is not difficult. To enter your application in the draw, the department must know who you are, where you live, what species you wish to hunt and where.

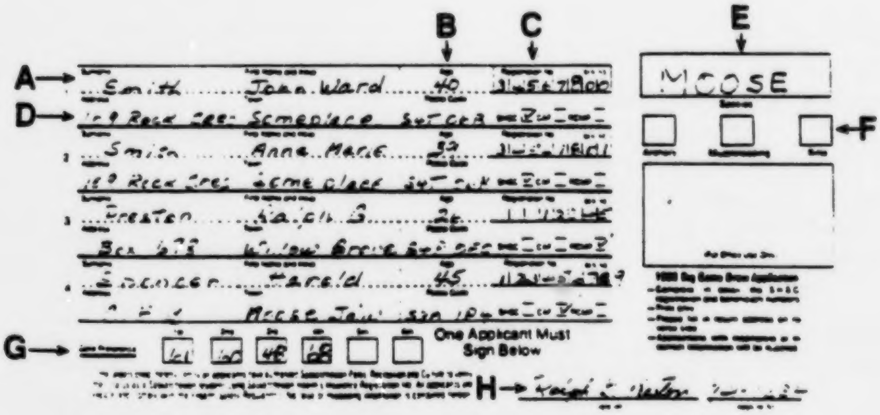
Applications must be received at the SPRC office, 3211 Albert Street, Regina, no later than 5:00 p.m. c.s.t., Thursday, July 7, 1988 to be eligible. Post office date stamps are not acceptable.

Follow these steps to complete your application. **Double check** all of your information before and after writing it on the application envelope, as applications with incomplete or incorrect information will be rejected.

A. Print your name with your last name first, **exactly** as it appears on your 1988 Saskatchewan Health Services Card. **Do not use nicknames. Be sure to complete both sides of the envelope.**

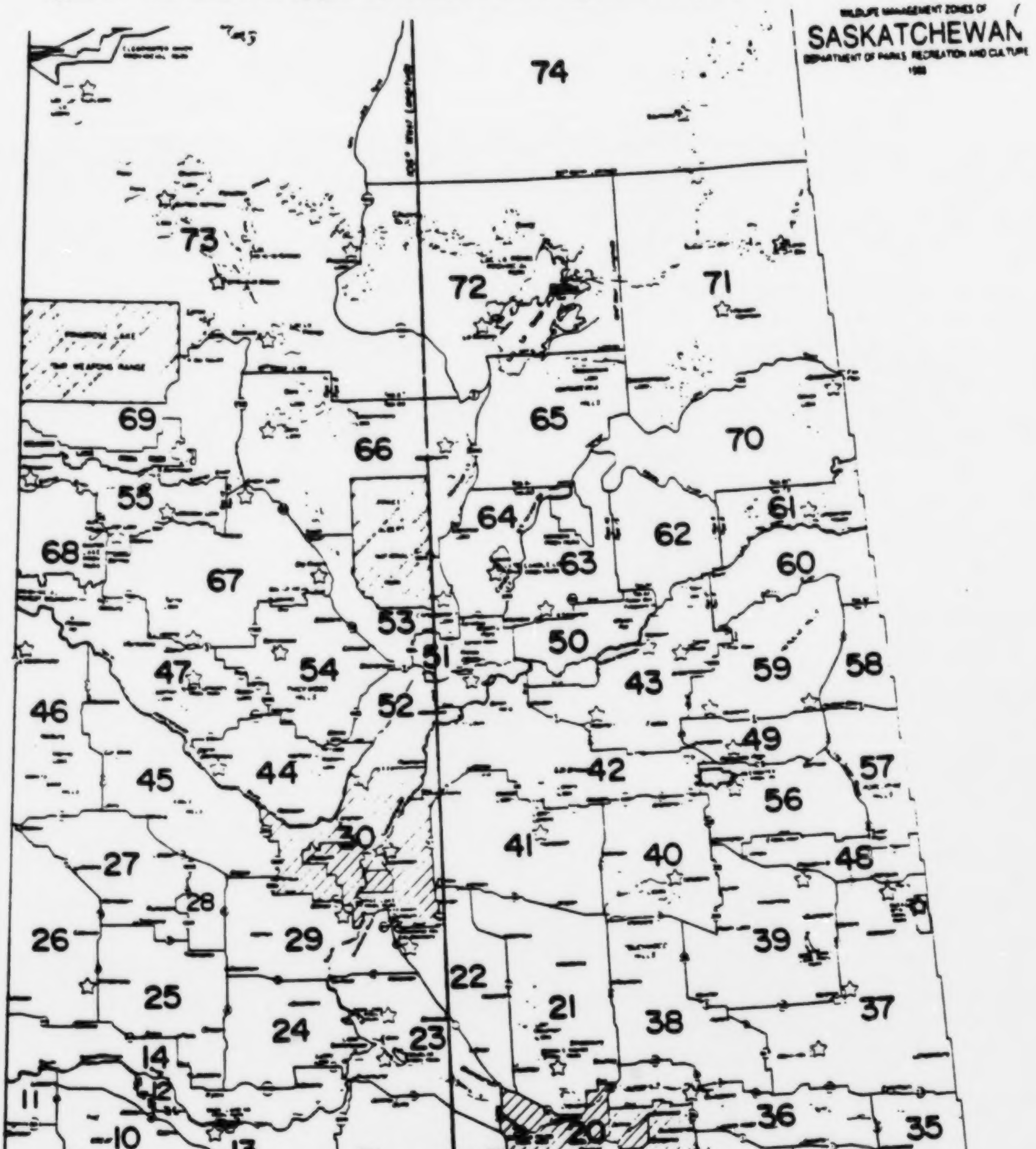
B. Enter your correct age.

C. Enter your full registration and beneficiary number from your 1988 Saskatchewan Health Services Card. **Do not use** Health Region, MSI or GMS card numbers. Print your registration number first, followed by your individual beneficiary number, in this manner: 345678-00 (see sample SHS card on the following page). Permanent members of the Armed Forces use their Social Insurance Number. RCMP use their Regimental number. **All applicants must mark the appropriate box on the application, indicating the type of number given.**


A
B
C
D
E
F
G
H
Smith
John Ward
40
Smith
Anne Marie
Harold
45
MOOSE
One Applicant Must Sign Below

(Sample Application Illustration)

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form (con't).


WILDLIFE MANAGEMENT ZONES OF
SASKATCHEWAN
DEPARTMENT OF PARKS, RECREATION AND CULTURE
1988
74
73
72
71
PRIMROSE LAKE
AIR WEAPONS RANGE
69
66
65
70
55
64
62
61
68
67
63
60
53
50
51
47
54
59
58
46
43
52
49
45
44
42
57
56
30
41
40
48
27
28
26
29
39
22
25
21
37
24
38
23
14
12
11
10
20
36
35
13
19
8
9
17
34
5
18
33
6
4
7
16
32
2
1
15
31
3
106°

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form (con't).

Tentative Season Dates and Licence quotas

New for 1988

Combined Zones 6 + 7 — Cypress Hills

Persons applying for the Cypress Hills area, **combined** WMZ 6 – that portion of WMZ 7, east of Highway No. 271 and Grid Road No. 615 should be aware that all elk hunting is on private land. Successful applicants are advised to contact the landowners as soon as possible to arrange permission to hunt in this area. **Special draw licences do not guarantee access to private land.**

Wildlife Management Zone 50 — Fort a la Corne

Persons applying for the Fort a la Corne area, WMZ 50, should be aware that a number of roads and trails north of the river were closed in 1987. **Good access is still available,** however, in this wildlife management unit. Although road closures necessitate some changes in hunting areas and methods, big game populations will ultimately increase providing better hunting opportunity in the future.

Antlerless White-Tail

Either-sex and Antlerless Mule Deer licence holders for Zone 6, 11 and 26 hunting between Nov. 7 and Nov. 19 inclusive may purchase an additional antlerless white-tailed deer licence. Mule deer licence holders for Zone 6 may hunt Antlerless White-tail in Zone 6 ONLY. Mule deer licence holders for Zones 11 or 26 may hunt Antlerless White-tail ONLY in that portion of Zones 11 and 14 along the South Saskatchewan River from Leader to the Alberta Border. (Consult 1988 Hunting and Trapping Guide for map of area).

Licences are available at department offices upon proof of possession of a mule deer licence for appropriate zones.

Priority Pool System

Applicants are grouped in a pool system for each species. In the Big Game Draw, greater priority is given to applications which fall within the higher pools.

Applications will be entered into the lowest priority pool of any person on the application. i.e. If you apply on the same application with a person who has "C" Pool status, your application will be treated with "C" Pool priority, regardless of your individual status. Consequently, applications with "A", "B" or Super "A" status **may** be put into a lower pool for the draw.

An applicant's pool for each species is determined by the following conditions:

Super "A" Pool — 1st Priority
- — consists of applicants who qualified for "A" Pool and applied in the previous year's draw (1987) but were **not** successfully drawn for that species.
- — to enter Super "A" Pool and to retain Super "A" status, applicants must continue to apply for that species **every** year. i.e. Super "A" Elk applicants must apply every year to maintain their status.

"A" Pool — 2nd Priority
- — consists of applicants who have **not** had a licence for a species in the past **two** years (1986 and 1987).
- — also includes all first time applicants for a species.
- — Unsuccessful "A" Pool applicants **must** apply the following year for the same species to advance to Super "A" Pool.

"B" Pool — 3rd Priority
- — consists of applicants who **were** successfully drawn **two** years previously (1986).

"C" Pool — 4th Priority
- — consists of applicants who were drawn the previous year (1987).

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form (con't).

Special Mule Deer Season (one animal either-sex)

Hunters may apply for only ONE of the Either-sex seasons: rifle, muzzleloading rifle or archery. Hunters may apply for BOTH Either-sex Mule Deer and Antlerless Mule Deer. Successful applicants in the Either-sex draw are eliminated from the Antlerless Mule Deer draw.

Rifle:

Nov. 7 - Nov. 9 **SPLIT SEASON** **Nov. 10 - Nov. 12**	Zones 2, 9, 10, 13 and 14, including Saskatchewan Landing Provincial Park. (Primitive weapons **ONLY** within the Park)
Nov. 7 - Nov. 12	Zones 1, 3 to 8, 11, 12, 18, 19, 23 to 27, 29, 30 and 45, including Elbow Wildlife Management Unit and Cypress Hills (West Block) Provincial Park.
Nov. 14 - Nov. 19	Zone 46.

Mule Deer Rifle Quotas
1 (400), 2 (700), 3 (50), 4 (150), 5 (200), 6 (250), 7 (150), 8 (50), 9 (400), 10 (700), 11 (50), 12 (100), 13 (400), 14 (600), 18 (50), 19 (300), 23 (250), 24 (150), 25 (150), 26 (150), 27 (100), 29 (150), 30 (150), 45 (100), 46 (250).

Muzzleloading Rifle:

A muzzleloading rifle Mule Deer Licence is valid ONLY during the Muzzleloading Rifle Season.

Oct. 3 - Oct. 15	**Combined** Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46, including Elbow Wildlife Management Unit and Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1** (200 licences) **Combined** Zones 9 and 10. **Designate Zone 9**. (50 licences)

Archery:

Sept. 5 - Oct. 15	**Combined** Zones 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 45 and 46, including Elbow Wildlife Management Unit and Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone** 1. (850 licences)
Sept. 19 - Oct. 1	**Combined Zones 9 and 10. Designate Zone 9.** (150 licences).

Special Antelope Season (one animal either-sex)

Oct. 27 - Nov. 19

Zones 1 to 14, 19, 23 to 26, including Saskatchewan Landing Provincial Park. (Primitive weapons ONLY within the Park) Note: **The opening date in Zone 3 will be delayed until October 29.**

Combined Zones:

2 and 5. **Designate 2.**
8 and 11. **Designate 8.**
12 and 13. **Designate 12**
19 and 23. **Designate 19.**

Archery Antelope Season (one animal either-sex)

Sept. 5 - Oct. 15

Combined Zones 1 to 15, 18, 19, 23 to 26, including Saskatchewan Landing Provincial Park. **Designate Zone 1.**

Antelope quotas for this fall will be set after July surveys have been completed. To assist applicants in choosing a zone, the 1987 quotas are listed below.

1987 Antelope Quotas
1 (50), 3 (600), 4 (50), 6 (75), 7 (200), 9 (450), 10 (125), 14 (200), 24 (50), 25 (50)
26 (50). **Combined** Zones 2 + 5 (800), 8 + 11 (200), 12 + 13 (200), 19 + 23 (75
Archery quota (300).

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form (con't).

Antlerless Mule Deer (one animal, antlerless only)

Definition of Antlerless Mule Deer — adult doe or a fawn born in 1988.

Hunters may apply for only **ONE** of the Antlerless Mule Deer seasons: rifle, muzzleloading rifle or archery. Hunters may apply for **BOTH** Either-sex Mule Deer and Antlerless Mule Deer. Successful applicants in the Either-sex draw are eliminated from the Antlerless Mule Deer draw. If you apply with different people for the Antlerless Mule Deer draw than on your Either-sex application, all applicants will be eliminated from the antlerless draw if you are drawn for the Either-sex season.

Antlerless Mule Deer are treated as a separate species in the Big Game Draw. Applicants who are successfully drawn for Antlerless Mule Deer will **NOT** have their Priority Pool Status for Either-sex Mule Deer affected.

Applicants 12 to 15 years of age on or before July 7, 1988 may apply for an Antlerless Mule Deer licence provided they supply with their application written consent from their parent or guardian on an SPRC consent form. Forms are available at SPRC, RCMP and Municipality offices.

Federal gun control legislation requires persons under 16 years of age to obtain minor's permits to possess firearms. Contact your local police detachment to apply for permits or obtain more information.

All applicants 17 years of age and younger and all first time hunters must hold a valid Firearm Safety/Hunter Education certificate.

Rifle:

Nov. 14 - Nov. 19

Zones 1, 2, 4 to 6, 9 to 11 and 19.

Antlerless Mule Deer Rifle Quotas:
1 (300), 2 (200), 4 (150), 5 (100), 6 (100), 9 (100), 10 (600), 11 (100), 19 (200).

Muzzleloading Rifle:

A muzzleloading Antlerless Mule Deer licence is valid **ONLY** during the Muzzleloading Rifle Season.

Oct. 3 - Oct. 15

Combined Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46, including Elbow Wildlife Management Unit and Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1.** (100 licences).

Combined Zones 9 and 10. **Designate Zone 9.** (50 licences)

Archery:

Sept. 5 - Oct. 15

Combined Zones 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 45 and 46 including Elbow Wildlife Management Unit and Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1.** (100 licences).

Sept. 19 - Oct. 1

Combined Zones 9 and 10. **Designate Zone 9.** (50 licences).

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form (con't).

Special Moose Season (one animal either-sex)

Sept. 12 - Sept. 17 and Nov. 7 - Nov. ~~12~~ 19	Combined Zones 48, 49 and 56. Designate Zone 48. (300 licences) Zones 57 to 62 and Zone 67 (includes Leaf Lake Wildlife Management Unit). Quotas: 57 (200), 58 (200), 59 (400), 60 (200), 61 (100), 62 (50), 67 (150).
Nov. 7 - Nov. 19	Combined Zones 55, 68 (includes Bronson Forest Recreation Site) and that portion of Zone 47 north of Highway No. 3 and west of Highway No. 26. Designate Zone 68. (75 licences) Zone 37, including Duck Mountain Provincial Park. (100 licences). Zone 56G. Greenwater Lake Provincial Park only. Designate Zone 56G. (50 licences).
Sept. 12 - Sept. 24 and Nov. 7 - Nov. 19	Zone 50 (includes Fort a la Corne Wildlife Management Unit). (200 licences).
Oct. 24 - Oct. 29	Zone 6. (25 licences).
Nov. 7 - Nov. 12	Zone 54. (100 licences).

Archery Moose Season (one animal either-sex)

In 1988 the Archery Moose Season in Zones 55 and 68 will be an open season, not requiring a draw licence. Archers will be able to hunt under a Regular Moose Licence (one animal either-sex), Sept. 19 - Oct. 1. Unsuccessful archers may use their licence during the regular rifle season.

Sept. 19 - Oct. 1	Zone 37 (includes Duck Mountain Provincial Park). (50 licences).

Special Elk Season (one animal either-sex)

Aug. 29 - Sept. 17	That portion of Zone 43 west of Highway No. 35 and north of Highway No. 355 **combined** with that portion of Zone 50, south of Highway No. 55, including Fort a la Corne Wildlife Management Unit. **Designate Zone 50** (100 licences).
Oct. 17 - Oct. 22	Combined Zones 48, 49, 56 and 57, including Greenwater Lake Provincial Park. **Designate Zone 48** (600 licences) Zone 59 (50 licences)
Oct. 24 - Oct. 29	Zone 33, including Moose Mountain Provincial Park (100 licences)
Nov. 14 - Nov. 19	That portion of Zone 54 south of Highway No. 3 (50 licences)
Oct. 17 - Oct. 29	That portion of Zone 7, west of Highway No. 271 and Grid Road No. 615, including Cypress Hills (West Block) Provincial Park (100 licences)
Oct. 31 - Nov. 5	**Combined** Zones 6 and 7, east of Highway No. 271 and Grid Road No. 615 **Designate Zone 6** (50 licences)
Oct. 17 - Oct. 22	That portion of Zone 63 south of the Torch River (50 licences)

1988 Calendar

SEPTEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NOVEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Appendix 2. 1988 Saskatchewan big game draw information sheet and application form (con't).

Important Changes for 1989 Draw

Hunters have been requesting that results of the Big Game Draw be made available at an earlier date.

In response to this the 1989 Big Game Draw will be held approximately one month earlier. Saskatchewan Parks, Recreation and Culture will soon announce a revised closing date for receipt of 1989 Big Game Draw applications sometime in early June of next year, rather than July 7 as in previous years. 1989 Big Game Draw Information Sheets will be available as quickly as possible in late April next year and results should be available by the first week of July, 1989.

Season dates and quotas on the 1989 Big Game Draw Information Sheet will be tentative as complete analysis of population surveys may not be complete at the time of printing.

The accelerated draw process will inform hunters earlier allowing more time for scheduling of holidays and examining regular season options for species they were not drawn for.

Licence Fees

Moose	$50.00
Elk	$50.00
Antelope	$35.00
Mule Deer (either-sex and antlerless)	$35.00

All successful applicants must also purchase a Saskatchewan Wildlife Habitat Certificate to validate their licence.

Wildlife Habitat Certificate	$10.00

Only you can prevent forest fires

If you put it out,
We won't have to.
Firewatch:
(Toll Free) 1-800-667-9660

Saskatchewan Parks, Recreation and Culture

For more information:
Saskatchewan Parks, Recreation and Culture
Communications Branch
3211 Albert Street
REGINA, Saskatchewan
S4S 5W6
Telephone: (306) 787-2700

24 Hours Toll Free
TURN IN POACHERS
1-(800)-667-7561

Appendix 3. 1988 big game hunter questionnaire survey.

Saskatchewan
Parks, Recreation
and Culture

Hon. Colin Maxwell
Minister

1988 Big Game Hunter Survey

Fellow Sporthunter:

We are again asking for your support with the Big Game Hunter Survey.

The harvest and hunting activity information you provide helps us set responsible hunting season dates, quotas and bag limits that ensure that our big game populations remain healthy and continue to provide the Saskatchewan sporthunter with recreational hunting opportunities.

Please use this questionnaire to record your big game hunting activities, then mail the form in the enclosed postage paid envelope when you are finished hunting for the year. Because the names for the survey are selected randomly every year for statistical accuracy, you may receive a questionnaire two or more years in a row.

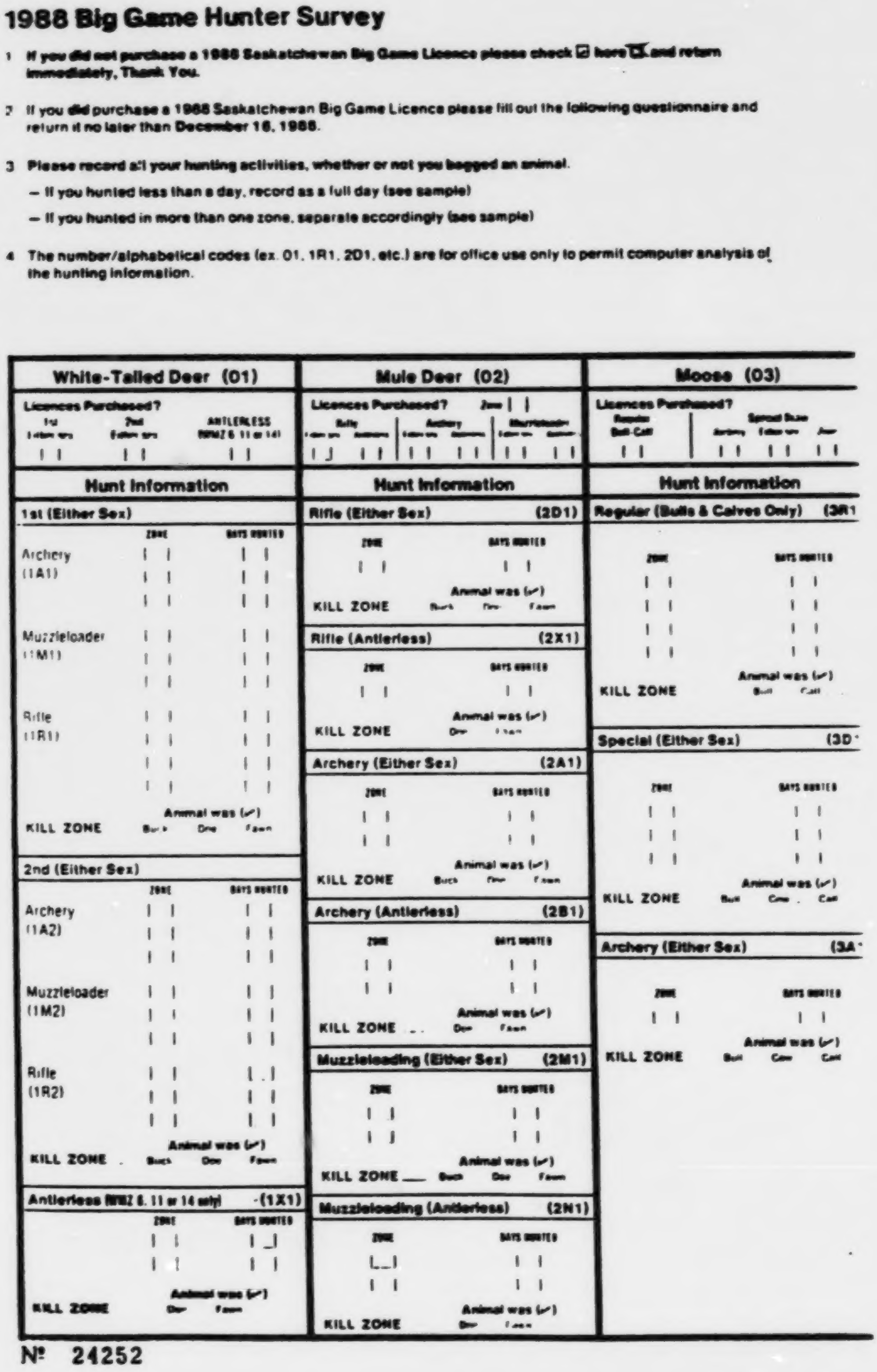
As a hunter, you will be interested in the results of last year's survey. The enclosed page, which is yours to keep, summarizes the 1987 big game harvest.

We greatly appreciate your assistance with the Big Game Hunter Survey. By doing so, you contribute to better wildlife management in Saskatchewan.

Hoping your 1988 hunting season is successful.

Dennis Sherratt
Director
Wildlife Branch
Saskatchewan Parks, Recreation and Culture

Appendix 3. 1988 big game hunter questionnaire survey (con't).



1988 Big Game Hunter Survey

1 If you did not purchase a 1988 Saskatchewan Big Game Licence please check ☑ here ☒ and return immediately, Thank You.

2 If you did purchase a 1988 Saskatchewan Big Game Licence please fill out the following questionnaire and return it no later than December 16, 1988.

3 Please record all your hunting activities, whether or not you bagged an animal.

— If you hunted less than a day, record as a full day (see sample)

— If you hunted in more than one zone, separate accordingly (see sample)

4 The number/alphabetical codes (ex. 01, 1R1, 2D1, etc.) are for office use only to permit computer analysis of the hunting information.

White-Tailed Deer (01)

Licences Purchased?

1st Either sex | 2nd Either sex | ANTLERLESS (WMZ 6, 11 or 14)

Hunt Information

1st (Either Sex)

ZONE | DAYS HUNTED

Archery (1A1)

Muzzleloader (1M1)

Rifle (1R1)

KILL ZONE — Animal was (✓) Buck Doe Fawn

2nd (Either Sex)

ZONE | DAYS HUNTED

Archery (1A2)

Muzzleloader (1M2)

Rifle (1R2)

KILL ZONE — Animal was (✓) Buck Doe Fawn

Antlerless (WMZ 6, 11 or 14 only) (1X1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Doe Fawn

Mule Deer (02)

Licences Purchased? Zone

Rifle: Either sex, Antlerless | Archery: Either sex, Antlerless | Muzzleloader: Either sex, Antlerless

Hunt Information

Rifle (Either Sex) (2D1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Buck Doe Fawn

Rifle (Antlerless) (2X1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Doe Fawn

Archery (Either Sex) (2A1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Buck Doe Fawn

Archery (Antlerless) (2B1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Doe Fawn

Muzzleloading (Either Sex) (2M1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Buck Doe Fawn

Muzzleloading (Antlerless) (2N1)

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Doe Fawn

Moose (03)

Licences Purchased?

Regular Bull-Calf | Special Draw: Archery, Either sex, Zone

Hunt Information

Regular (Bulls & Calves Only) (3R1

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Bull Calf

Special (Either Sex) (3D

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Bull Cow Calf

Archery (Either Sex) (3A

ZONE | DAYS HUNTED

KILL ZONE — Animal was (✓) Bull Cow Calf

Nº 24252

Appendix 3. 1988 big game hunter questionnaire survey (con't).

5. Sample

White-Tailed Deer (01)

Licences Purchased?

1st Either sex	2nd Either sex	ANTLERLESS (WMZ 6, 11 or 14)
✓		

Hunt Information

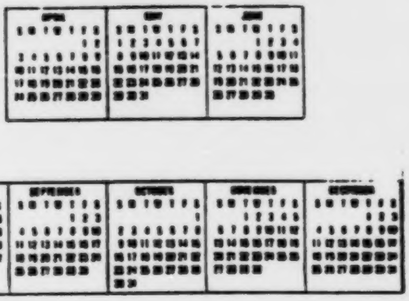
1st (Either Sex)

	ZONE	DAYS HUNTED
Archery	31	1
Muzzleloader	32	3
Rifle	31	2
	32	1

Animal was (✓)

KILL ZONE 32 Buck Doe Fawn ✓

6. 1988 Calendar



Antelope (04)

Licences Purchased?

[illegible] Archery Zone

Hunt Information

Rifle (4D1)

ZONE DAYS HUNTED

Animal was (✓)

KILL ZONE Buck Doe Kid

Archery (4A1)

ZONE DAYS HUNTED

Animal was (✓)

KILL ZONE Buck Doe Kid

Elk (05)

Licences Purchased?

Regular Bulls Only, Either Sex (WMZ 53)

Special Draw Either Sex Zone

Hunt Information

Regular (Bulls Only) (5R1)

ZONE DAYS HUNTED

Animal was (✓)

KILL ZONE Bull

Regular (Either Sex WMZ 53) (5R1)

ZONE 53 DAYS HUNTED

Animal was (✓)

KILL ZONE 53 Bull Cow Calf

Special (Either Sex) (5D1)

ZONE DAYS HUNTED

Animal was (✓)

KILL ZONE Bull Cow Calf

Bear (08)

Licences Purchased?

1st 2nd

Hunt Information

1st (8R1)

DATE ZONE DAYS HUNTED

Spring

Fall

Animal was (✓)

KILL ZONE ___ Boar Sow Cub

2nd (8R2)

DATE ZONE DAYS HUNTED

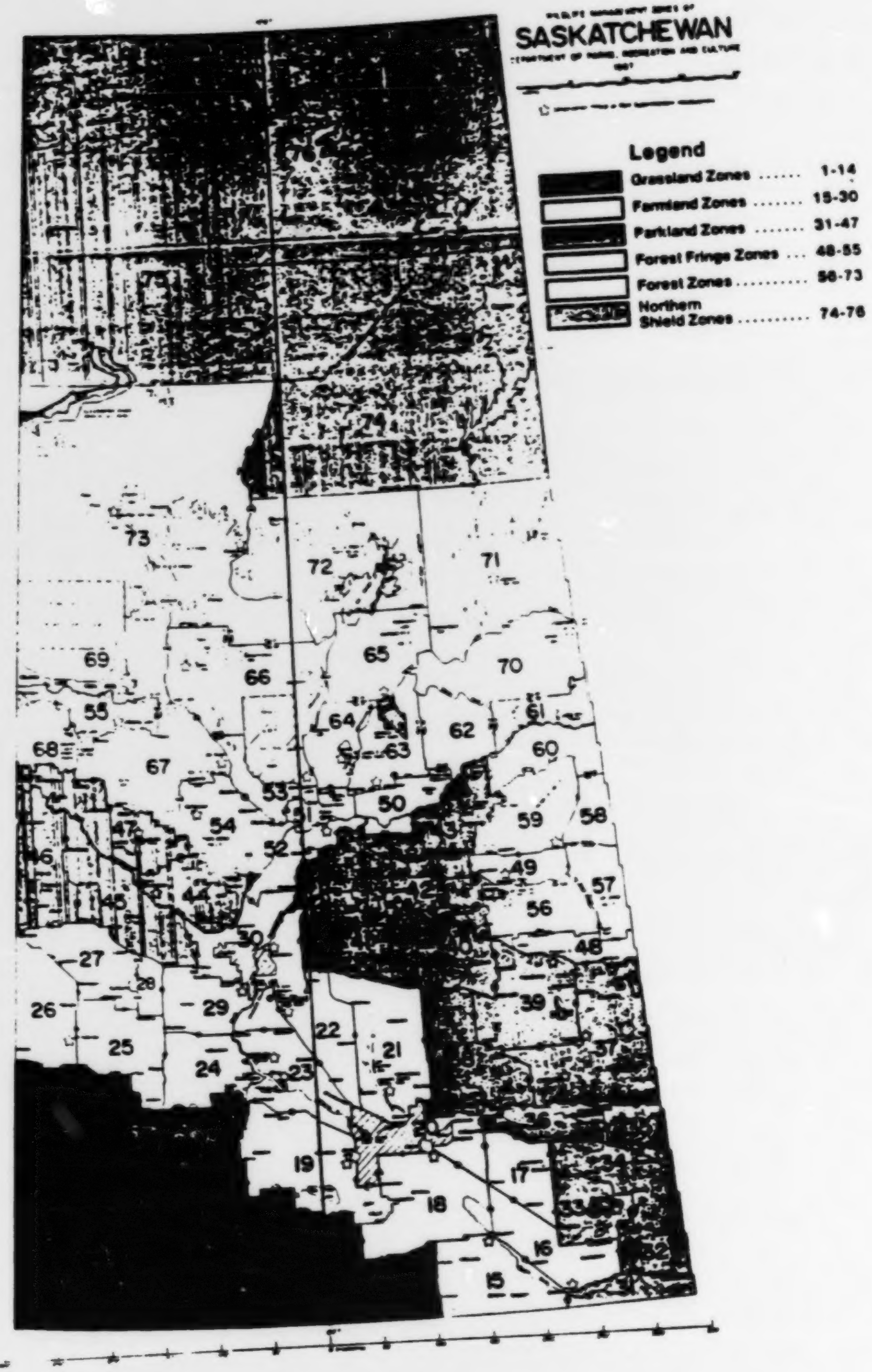
Spring

Fall

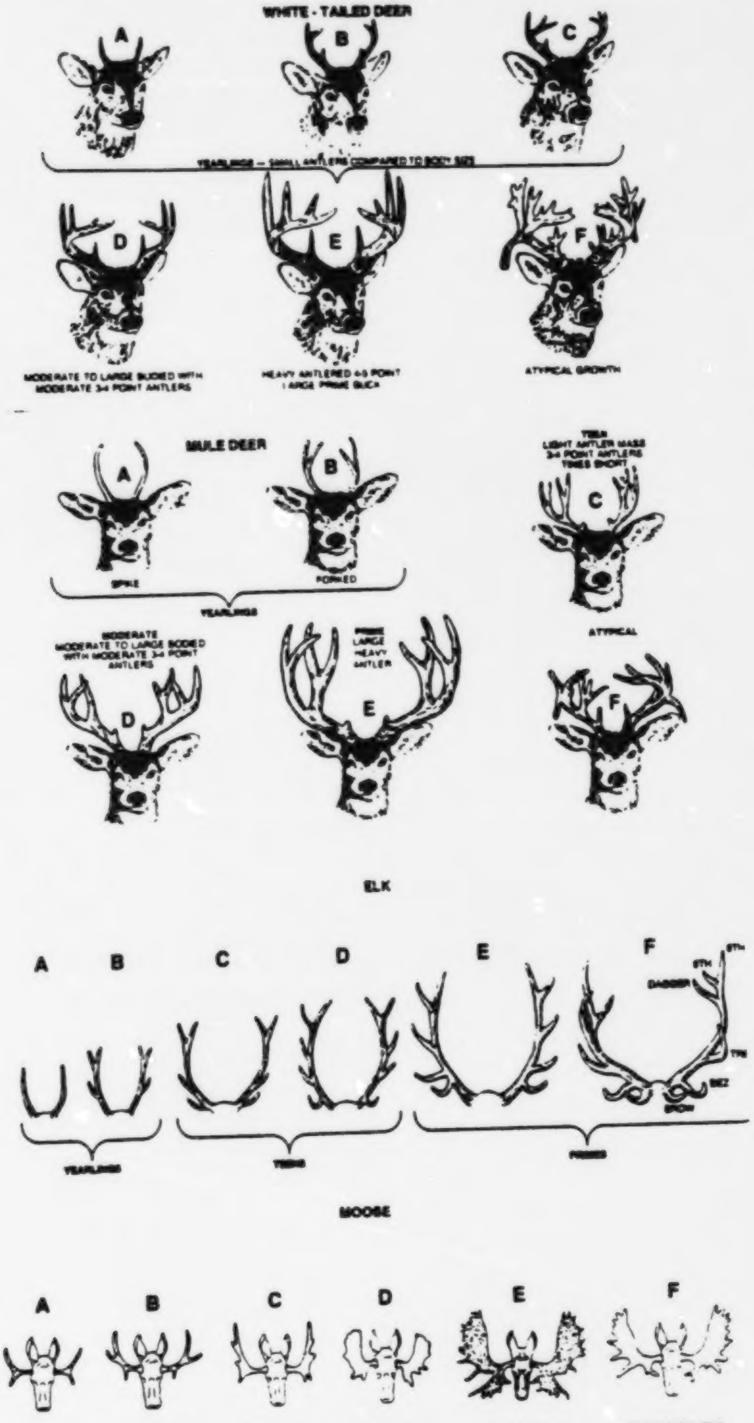
Animal was (✓)

KILL ZONE ___ Boar Sow Cub

Appendix 3. 1988 big game hunter questionnaire survey (con't).


SASKATCHEWAN
Legend
Grassland Zones 1-14
Farmland Zones 15-30
Parkland Zones 31-47
Forest Fringe Zones ... 48-55
Forest Zones 56-73
Northern Shield Zones 74-76
73
72
71
69
66
65
70
55
64
63
62
61
68
67
60
53
50
51
54
59
58
47
52
49
46
44
57
45
56
30
48
27
28
26
29
39
22
21
25
24
23
37
20
36
19
17
18
33
16
15

Appendix 4. Designation of antler configuration and size for four big game ungulates in Saskatchewan.


WHITE - TAILED DEER
A
B
C
YEARLINGS — SMALL ANTLERS COMPARED TO BODY SIZE
D
E
F
MODERATE TO LARGE BODIED WITH MODERATE 3-4 POINT ANTLERS
HEAVY ANTLERED 4-5 POINT LARGE PRIME BUCK
ATYPICAL GROWTH
MULE DEER
A
B
SPIKE
FORKED
YEARLINGS
TEEN LIGHT ANTLER MASS 3-4 POINT ANTLERS TINES SHORT
C
ATYPICAL
MODERATE MODERATE TO LARGE BODIED WITH MODERATE 3-4 POINT ANTLERS
PRIME LARGE HEAVY ANTLER
D
E
F
ELK
A
B
C
D
E
F
6TH
5TH
DAGGER
TRE
BEZ
BROW
YEARLINGS
TEENS
PRIMES
MOOSE
A
B
C
D
E
F
SPIKE OR SMALL FORK
SMALL FORK SHORT BROW TINE
SMALL PALMS
MODERATE PALMS SHORT BROW TINE
LARGE PALMS ON BROW TINE
FORKED BROW TINE

Appendix 5. Provincial harvest structure for elk.

Regular and special seasons combined, 1984-88					Percentage of Calves, Cows and Bulls, 1984-88			
Year	Calves	Cows	Bulls	Total	Year	Calves	Cows	Bulls
1984	10	29	122	161	1984	6.21%	18.01%	75.78%
1985	13	32	114	159	1985	8.18%	20.13%	71.69%
1986	5	80	159	244	1986	2.05%	32.79%	65.16%
1987	29	59	136	224	1987	11.89%	24.18%	55.74%
1988	17	61	156	234	1988	7.26%	26.07%	66.67%

Appendix 6. Provincial age structure of elk bulls in the September regular seasons, 1984 to 1988.

	Year and Season Dates						
Age	1984 S17-29	1985 S16-28	1986 S15-27	1987 S14-26	1988 S12-24	Mean	Total
1.5	16	15	28	39	37	27	135
2.5	12	14	19	19	26	18	90
3.5	4	11	9	15	20	12	59
4.5	5	12	7	10	6	8	40
5.5	1	5	3	2	7	4	18
6.5	1	1	8	3	1	3	14
7.5	2	4	5	2	4	3	17
8.5	2	2	0	0	2	1	6
9.5	2	3	1	1	0	1	7
10.5	1	0	3	0	0	1	4
11.5	0	0	0	1	1	0	2
Mean	3.57	3.87	3.61	2.93	3.09		3.35
Sdev	2.54	2.21	2.41	1.87	1.91		2.18

Appendix 7. Harvest of elk bulls by antler configurations, 1984 to 1988.

Antler Class	Year and Season Dates 1984 S17-29	 1985 S16-28	 1986 S15-27	 1987 S14-26	 1988 S12-24	Mean	Total
A	11	14	20	32	29	21	106
B	6	1	10	9	8	7	34
C	6	9	13	11	15	13	64
D	24	23	18	19	23	18	90
E	17	16	12	18	25	18	88
F	18	8	15	8	13	12	62

Appendix 8. Mean age of elk bulls by antler configuration, 1984 to 1988.

Antler Class	Year and Season Dates 1984 S17-29	 1985 S16-28	 1986 S15-27	 1987 S14-26	 1988 S12-24	Mean
A	1.5	1.5	1.5	1.5	1.5	1.5
	(0.00)[a]	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
B	1.67	1.5	1.7	1.61	1.5	1.62
	(0.37)	(0.00)	(0.40)	(0.32)	(0.00)	(0.32)
C	3.17	2.75	2.77	2.8	2.73	2.79
	(0.94)	(0.44)	(0.62)	(0.46)	(0.42)	(0.54)
D	4.06	3.5	3.63	3.21	3.09	3.48
	(2.39)	(0.84)	(1.45)	(0.75)	(0.78)	(1.38)
E	6.5	5.58	5.88	4.92	5.11	5.41
	(2.19)	(1.21)	(1.49)	(1.75)	(1.67)	(1.69)
F	7.5	7.5	7.21	7.3	6.63	7.18
	(2.16)	(2.12)	(2.09)	(2.40)	(2.26)	(2.20)
Mean	3.57	3.87	3.61	2.93	3.09	3.35
Sdev	2.54	2.21	2.41	1.87	1.91	2.18

[a] Standard deviation.

Appendix 9. Grassland and Farmland antelope rifle harvest, 1988.

	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
01	101	101	94	93.07	94	5.00:1:0.00	186	1.98	0.0223
02	1,092	1,092	964	88.28	964	3.35:1:0.18	1,987	2.06	0.1867
03	753	753	631	83.80	631	3.14:1:0.09	1,365	2.16	0.3176
04	78	78	68	87.18	68	6.50:1:0.00	161	2.37	0.0198
06	100	100	90	90.00	90	3.73:1:0.27	171	1.90	0.0407
07	161	161	106	65.84	106	3.62:1:0.15	350	3.30	0.1846
08	274	274	248	90.51	248	2.27:1:0.09	437	1.76	0.1287
09	595	595	495	83.19	495	1.96:1:0.19	1,175	2.37	0.3420
10	306	306	257	83.99	257	1.51:1:0.23	553	2.15	0.1559
12	297	297	254	85.52	254	2.13:1:0.15	614	2.42	1.7848
14	223	223	162	72.65	162	1.55:1:0.18	501	3.09	0.0897
Total	3,980	3,980	3,368	84.62	3,368	2.63:1:0.16	7,500	2.23	0.1157
Farmland									
19	102	102	87	85.29	87	2.18:1:0.00	203	2.33	0.0220
24	79	79	69	87.34	69	3.67:1:0.11	131	1.90	0.0271
25	73	73	64	87.67	64	1.93:1:0.07	125	1.95	0.0214
26	75	75	63	84.00	63	2.86:1:0.00	128	2.03	0.0289
Total	329	329	284	86.32	284	2.52:1:0.04	587	2.07	0.0064

Appendix 10. Grassland and Farmland antelope archery harvest, 1988.

	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
01	14	15	2	14.29	2	1.91:1:0.00	69	34.50	0.0082
02	26	29	6	23.08	6	5.73:1:0.00	106	17.67	10.0099
03	9	10	4	44.44	4	3.82:1:0.00	36	9.00	0.0083
04	3	4	0	0.00	0	0.00:1:0.00	15	0.00	0.0018
05	7	8	2	28.57	2	0.00:1:0.00	40	20.00	0.0067
06	14	15	2	14.29	2	1.91:1:0.00	63	31.50	0.0150
07	2	2	0	0.00	0	0.00:1:0.00	7	0.00	0.0036
08	5	6	0	0.00	0	0.00:1:0.00	23	0.00	0.0067
09	31	34	8	25.81	8	7.64:1:0.00	135	16.88	0.0393
10	39	44	10	25.64	10	9.55:1:0.00	196	19.6	0.0552
12	2	2	0	0.00	0	0.00:1:0.00	2	0.00	0.0058
13	50	55	2	4.00	2	1.91:1:0.00	207	103.50	0.0506
14	10	11	4	40.00	4	3.82:1:0.00	47	11.75	0.0084
Total	210	235	38	18.10	38	19.00:1:0.00	945	24.87	0.0145
Farmland									
15	13	15	6	46.15	6	5.73:1:0.00	66	11.00	0.0098
18	13	15	2	15.38	2	1.91:1:0.00	70	35.00	0.0093
19	3	4	2	66.67	2	1.91:1:0.00	11	5.50	0.0011
23	5	6	2	40.00	2	0.00:1:0.00	15	7.50	0.0026
24	12	13	2	16.67	2	1.91:1:0.00	21	10.50	0.0043
25	5	6	0	0.00	0	0.00:1:0.00	10	0.00	0.0017
26	5	6	2	40.00	2	1.91:1:0.00	13	6.50	0.0029
Total	56	65	15	26.79	15	7.00	208	13.87	0.0022

Appendix 11. Saskatchewan 1988 game bird seasons.

Upland Game Birds

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Sharp-tailed Grouse (All Hunters)	Zones 1 to 8, 15 to 19, 23, 24, 29 and 31 to 33, and starting Oct. 5, Elbow, Estevan-Cambria and Lomond Wildlife Management Units	Sept. 21 - Nov. 19	5 daily 10 possession
	Zones 20 to 22, 30 and 34 to 47, including Last Mountain Lake Wildlife Management Unit	Sept. 21 - Nov. 19	3 daily 6 possession
	Zones 48 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks, Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 7 - Dec. 3	3 daily 6 possession
Sharp-tailed Grouse (Sask. Residents and Canadian Residents Only)	Zones 9 to 14 and 25 to 28	Sept. 21 - Nov. 19	5 daily 10 possession
Hungarian Partridge (All Hunters)	Zones 1 to 8, 15 to 19, 22 to 24, 29 and 31, and starting Oct. 5, Elbow, Estevan-Cambria and Lomond Wildlife Management Units	Sept. 21 - Nov. 19	10 daily 20 possession
	Zones 20, 21, 30 and 32 to 41, including Last Mountain Lake Wildlife Management Unit	Sept. 21 - Nov. 19	5 daily 10 possession
	Zones 42 to 55, including Fort a la Corne Wildlife Management Unit	Sept. 21 - Nov. 19	3 daily 6 possession
Hungarian Partridge (Sask. Residents and Canadian Residents Only)	Zones 9 to 14	Sept. 21 - Nov. 19	10 daily 20 possession
	Zones 25 to 28	Sept. 21 - Nov. 19	5 daily 10 possession
Hungarian Partridge (Sask. Residents Only)	Zones 1 to 19, 24 and 31, including Estevan-Cambria and Lomond Wildlife Management Units	Dec. 5 - Dec. 21	10 daily 20 possession
Pheasants (Sask. Residents Only, May Hunt Cocks Only)	Zones 1 to 36, including Elbow, Estevan-Cambria and Lomond Wildlife Management Units	Oct. 5 - Nov. 19	3 daily 9 possession
	Zones 1 to 20, 24 and 31, including Estevan-Cambria and Lomond Wildlife Management Units	Dec. 5 - Dec. 21	3 daily 9 possession
Ruffed Grouse (All Hunters)	Zones 1 to 47, including Elbow and Last Mountain Lake Wildlife Management Units; and Duck Mountain and Moose Mountain Provincial Parks	Sept. 21 - Nov. 19	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Greenwater Lake, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 7 - Dec. 3	10 daily 20 possession
Spruce Grouse (All Hunters)	Zone 43	Sept. 21 - Nov. 19	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks, Fort a la Corne Wildlife Management Unit, and Bronson Forest Recreation Site	Sept. 7 - Dec. 3	10 daily 20 possession
Ptarmigan (All Hunters)	Zones 61 to 66 and 69 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Nov. 14 - Mar. 31, 1989	10 daily 20 possession

Game Bird Hunting Closed

The following areas are closed to hunting:

Cypress Lake and the islands thereon, 10 miles north of Consul
Horsehide Lake and the islands thereon, eight miles south of Mistatim
Tobin Lake and the islands thereon
Witchekan Lake (north of Spiritwood)
The islands in the North Saskatchewan River between the Paynton Ferry and the Alberta border

The following water areas are closed to game bird hunting in, on, or within 800 metres of the water's edge between September 12, 1988, and November 5, 1988 both dates inclusive:

Boulder Lake, 10 miles southeast of Watrous
Ibsen Lake, four miles west of Yellow Grass

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge between September 19, 1988, and November 5, 1988 both dates inclusive:

Barber Lake, three miles north of Wiseton
Cactus Lake, 12 miles southeast of Macklin
Castlewood Lake, three miles northwest of Biggar
Cutbank Lake, three miles northeast of Glidden

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge until November 14, 1988.

Antelope Lake, eight miles north of Gull Lake
Avonlea Reservoir, three miles southeast of Avonlea
Bigstick Lake, 10 miles east of Golden Prairie
Birch Lake, 10 miles northeast of Glaslyn
Buffalo Coulee Lake, eight miles northwest of Coleville
Cabri Lake, 10 miles south of Mantario
Deep Lake, five miles south of Indian Head
Dewar Lake, near the town of Dewar Lake
Ear Lake, six miles east of Reward
Eyre Lake, seven miles west of Mantario
Flat Lake, three miles southeast of Wilkie
Goose Lake, seven miles east of Harris
Gooseberry Lake, 13 miles northeast of Fillmore
Grassy Lake, seven miles northeast of Luseland
Highfield Reservoir, 18 miles east of Swift Current
Handsome Lake, six miles north of Rush Lake
Junction Dam, two miles north of Maple Creek
Kiyiu Lake, six miles north of Netherhill
Lac la Course, six miles southeast of Pelly
Leech Lake, eight miles south of Yorkton
Lomond Lake, three miles northwest of Preeceville
Luck Lake, four miles west of Birsay
Mallard Bay, eight miles north of Mortlach
Mud Lake, 10 miles north of Wynyard
Muddy Lake, seven miles south of Unity
Opuntia Lake, four miles east of Plenty
Peysen Lake, 19 miles north of Chaplin
Saline Lake, two miles southwest of Invermay
Silver Lake, seven miles north of Sheho
Snipe Lake, seven miles northwest of Eston
Stonewall Lake, two miles south of Invermay
Teo Lake, eight miles west of Kindersley
Thackeray Lake, two miles east of Thackeray
Thomson Lake, three miles northwest of Lafleche
Waterhen Marsh, four miles south of Kinistino

- That portion of the Waterhen River, three miles west and two miles east from the Highway No. 4 crossing (five miles north of Dorintosh, WMZ 69).
- That portion of the South Saskatchewan River lying between Gardiner Dam and the north boundary of Township 30, Range 8, West of the Third Meridian.
- That portion of the South Saskatchewan River and Lake Diefenbaker lying between the Alberta border and Saskatchewan Landing Bridge.
- That portion of the North Saskatchewan River lying between the Paynton Ferry and the Borden Bridge.

Appendix 11. Saskatchewan 1988 game bird seasons (con't).

Waterfowl

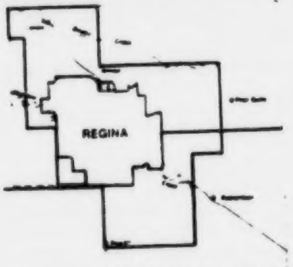
Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Ducks (All Hunters)	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units; and starting Sept. 21, Last Mountain Lake Wildlife Management Unit	Sept. 12 - Dec. 10	5 daily (3 only may be mallards) 10 possession (6 only may be mallards)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 10	5 daily (3 only may be mallards) 10 possession (6 only may be mallards)
American Coots and Common Snipe **(All Hunters)**	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units; and starting Sept. 21, Last Mountain Lake Wildlife Management Unit	Sept. 12 - Dec. 10	10 daily 20 possession
	Zones 43, 46 to 51 and 53 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 10	10 daily 20 possession
Sandhill Cranes (Sask. Residents and Canadian Residents Only)	Zones 19, 21 to 24, 29, 30, 37 to 42, 44 and 52	Sept. 1 - Sept. 13	5 daily 10 possession
	Zones 11 to 14	Sept. 12 - Sept. 20	5 daily 10 possession
Geese (Sask. Residents Only)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 21 - Dec. 10	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 42, 44 to 47 and 52, including Valeport Wildlife Management Unit and starting September 21, Last Mountain Lake Wildlife Management Unit	Sept. 14 - Dec. 10	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 10	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
Geese (Canadian Residents and Non-residents)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 28 - Dec. 10	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 52, 54, 56 and 57, including Fort a la Corne, Horsehide Lake, Last Mountain Lake and Valeport Wildlife Management Units	Sept. 28 - Dec. 10	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 53, 55 and 58 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks, and Bronson Forest Recreation Site	Sept. 1 - Dec. 10	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)

All Hunters Please Note: Starting Sept. 28 in Zones 15 to 18, 20 to 22, 30 to 43 and 48 to 76: 3 additional Snow or Ross' geese may be taken daily, and 6 additional Snow or Ross' geese may be kept in possession

Starting Oct. 15 in Zones 1 to 14, 19, 23 to 29 and 44 to 47: 3 additional Snow or Ross' geese may be taken daily, and 6 additional Snow or Ross' geese may be kept in possession

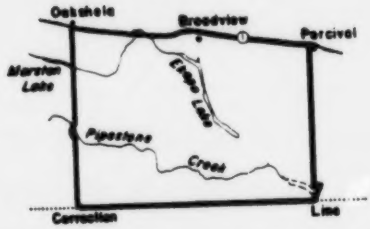
Note: Prior to Oct. 23, in Zones 1 to 59, 67, 68 and 69, any open season for geese includes that portion of the day from one-half hour before sunrise to 12:00 noon local time. From Oct. 24 to Dec. 10, geese may be hunted all day in all open zones.

Goose Restriction Areas



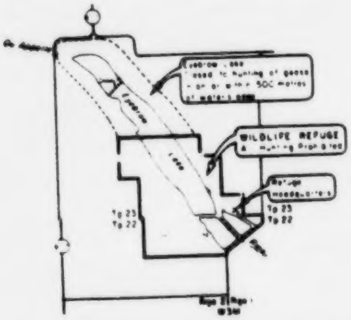
Zones 18, 20 Wascana Flock

Canada Geese may not be hunted in this area. **Watch for signs.** For a detailed map of this area contact the conservation officer at 3211 Albert Street, Regina.



Zone 34 Broadview Flock

Canada geese may not be hunted in that portion of WMZ 34 (Broadview area) described as follows: Bordered by Highway No. 1 between Oakshela and Percival; south on the Percival road to the correction line; west on the correction line road to the Oakshela grid road junction; north on the Oakshela grid road to Highway No. 1.



Zone 23 Eyebrow Lake Flock

To protect the Canada goose population on Eyebrow Lake, lands around the lake are posted to prohibit the hunting of all geese. All hunting is prohibited on the Wildlife Refuge, and the goose hunting restriction around the remainder of the lake is 500 metres from the water's edge.

Appendix 12. Saskatchewan 1989 game bird seasons.

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Sharp-tailed Grouse (All Hunters)	Zones 1 to 8, 15 to 24, 29 to 47, including Last Mountain Lake Wildlife Management Unit; and starting Oct. 4, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 4	3 daily 6 possession
	Zones 48 to 76, including Clearwater River, Lac La Ronge, Meadow Lake, and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	3 daily 6 possession
Sharp-tailed Grouse (Sask. Residents and Canadian Residents Only)	Zones 9 to 14 and 25 to 28	Sept. 20 - Nov. 4	3 daily 6 possession
Hungarian Partridge (All Hunters)	Zones 1 to 8, 15 to 19, 22 to 24, 29 and 31; and starting Oct. 4, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and Starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 18	10 daily 20 possession
	Zones 20, 21, 30 and 32 to 41, including Last Mountain Lake Wildlife Management Unit	Sept. 20 - Nov. 18	5 daily 10 possession
	Zones 42 to 55, including Fort a la Corne Wildlife Management Unit	Sept. 20 - Nov. 18	3 daily 6 possession
Hungarian Partridge (Sask. Residents and Canadian Residents Only)	Zones 9 to 14	Sept. 20 - Nov. 18	10 daily 20 possession
	Zones 25 to 28	Sept. 20 - Nov. 28	5 daily 10 possession
Hungarian Partridge (Sask. Residents Only)	Zones 1 to 19, 24 and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units	Dec. 4 - Dec. 20	10 daily 20 possession
Pheasants (Sask. Residents Only May Hunt Cocks Only)	Zones 1 to 38, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Management Units; and starting Oct. 31, Elbow Wildlife Management Unit	Oct. 4 - Nov. 18	3 daily 6 possession
	Zones 1 to 20, 24 and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Managment Units	Dec. 4 - Dec. 20	3 daily 6 possession
Ruffed Grouse (All Hunters)	Zones 1 to 47, including Last Mountain Lake Wildlife Management Unit, Duck Mountain and Moose Mountain Provincial Parks, and starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 18	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Greenwater Lake, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit, and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	10 daily 20 possession
Spruce Grouse (All Hunters)	Zone 43	Sept. 20 - Nov. 18	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks, Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	10 daily 20 possession
Ptarmigan (All Hunters)	Zones 61 to 66 and 69 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Nov. 13 - Mar. 31, 1990	10 daily 20 possession

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Ducks (All Hunters)	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units, and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 11 - Dec. 9	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintail and 2 only may be canvasback)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintail and 2 only may be canvasback)
American Coots and Common Snipe (All Hunters)	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units; and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 11 - Dec. 9	10 daily 20 possession
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	10 daily 20 possession
Sandhill Cranes (Sask. Residents and Canadian Residents Only)	Zones 19, 21 to 24, 29, 30, 37 to 42, 44 and 52	Sept. 1 - Sept. 12	5 daily 10 possession
	Zones 11 to 14	Sept. 11 - Sept. 19	5 daily 10 possession
Geese (Sask. Residents Only)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 20 - Dec. 9	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 42, 44 to 47 and 52, including Valeport and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 13 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
Geese (Canadian Residents and Non-residents)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 27 - Dec. 9	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 52, 54, 56 and 57, including Valeport, Last Mountain Lake, Horsehide Lake and Fort a la Corne Wildlife Management Units	Sept. 27 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 53, 55 and 58 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)

All Hunters Please Note: Starting Sept. 27 in Zones 15 to 18, 20 to 22, 30 to 43 and 48 to 76:
3 additional Snow or Ross' geese may be taken daily, and 6 additional Snow or Ross' geese may be kept in possession.

Starting Oct. 14 in Zones 1 to 14, 19, 23 to 29 and 44 to 47:
3 additional Snow or Ross' geese may be taken daily, and 6 additional Snow or Ross' geese may be kept in possession.

Note: Prior to Oct. 22, in Zones 1 to 58, 67, 68 and 69, any open season for geese includes that portion of the day from one-half hour before sunrise to 12:00 noon local time. From Oct. 23 to Dec. 9, geese may be hunted all day in all open zones.

Appendix 13a. Saskatchewan duck hunting regulations, 1976 to 1989.

Year	Wildlife Management Zones[a]	Hunting Season Dates	Daily Bag Limit
1976	1-22	Sept 8 - Dec 18	8 (1 redhead or canvasback)
	23-37	Sept 1 - Dec 11	8 (1 redhead or canvasback)
1977	1-22	Sept 8 - Dec 17	6 (1 redhead or canvasback)
	23-37	Sept 1 - Dec 10	6 (1 redhead or canvasback)
1978	1-22	Sept 11 - Dec 16	6
	23-37	Sept 1 - Dec 9	6
1979	1-22	Sept 10 - Dec 15	8
	23-37	Sept 1 - Dec 8	8
1980	1-22	Sept 8 - Dec 13	8
	23-37	Sept 1 - Dec 6	8
1981[b]	1-22	Sept 7 - Dec 12	8
	23-37	Sept 1 - Dec 5	8
1982	1-22	Sept 8 - Dec 11	8
	23-37	Sept 1 - Dec 4	8
1983	1-22	Sept 7 - Dec 10	8
	23-37	Sept 1 - Dec 3	8
198[c]	1-42, 44-47, 52	Sept 5 - Dec 8	8
	43, 48-51, 53-76	Sept 1 - Dec 8	8
1985	1-42, 44-47, 52	Sept 11 - Dec 7	4
	43, 48-51, 53-76	Sept 2 - Dec 7	4
1986	1-42, 44-47, 52	Sept 15 - Dec 13	6 (4 mallards only)
	43, 48-51, 53-76	Sept 1 - Dec 13	6 (4 mallards only)
1987	1-42, 44-47, 52	Sept 14 - Dec 12	6 (4 mallards only)
	43, 48-51, 53-76	Sept 1 - Dec 12	6 (4 mallards only)
1988	1-42, 44-47, 52	Sept 12 - Dec 10	5 (3 mallards)
	43, 48-51, 53-76	Sept 1 - Dec 10	5 (3 mallards) canvasback)

---

[a] Details omitted concerning some Wildlife Management Units (WMU) and Provincial Parks. Hunting has traditionally been allowed in the following areas according to the regulations of the surrounding WMZ: Last Mountain Lake, Elbow, Valeport, Pasquia, Porcupine, Fort a la Corne and Horsehide Lake WMU, Meadow Lake, Nipawin, Lac la Ronge and Clearwater River Provincial Parks, and Bronson Recreation Site.

[b] All special restrictions lifted from Canadian residents and non-residents.

[c] 76 new wildlife management zones in effect.

Appendix 13b. **Saskatchewan goose hunting regulations, 1981 to 1988 (details omitted concerning local closures; Wildlife Management Units and Provincial Parks).**

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1981	1-6, 8, 9, 12-15	Sept 23 - Dec 12	5 (2 whitefronts)
	7, 10, 11, 16-22	Sept 16 - Dec 12	5 (3 whitefronts)
	23-37	Sept 1 - Dec 5	5 (3 whitefronts)
	1-25, 28, 30, 32, 33	Sept 1 - Oct 20	Morning Hunting Only
	All Zones	On and After Oct 15	3 Additional White Geese
1982	1-6, 8, 9, 12-15	Sept 22 - Dec 11	5 (2 whitefronts)
	7, 10, 11, 16-22	Sept 15 - Dec 4	5 (3 whitefronts)
	23-37	Sept 1 - Dec 4	5 (3 whitefronts)
	1-25, 28, 30, 32	Sept 1 - Oct 20	Morning Hunting Only
	All Zones	On and After Oct 15	3 Additional White Geese
1983	1-6, 8, 9, 12-15	Sept 21 - Dec 10	5 (2 whitefronts)
	7, 10, 11, 16-22	Sept 14 - Dec 10	5 (3 whitefronts)
	23-37	Sept 1 - Dec 3	5 (3 whitefronts)
	1-25, 28, 30, 32, 33	Sept 1 - Oct 20	Morning Hunting Only
	1-37 (All Zones)	On and After Oct 15	3 Additional White Geese
1984	1-14, 18, 19, 20, 22-29	Sept 19 - Dec 8	5 (2 whitefronts)
	15, 16, 17, 21, 30-42 44-47, 52	Sept 12 - Dec 8	5 (3 whitefronts)
	43, 48-51, 53-76	Sept 1 - Dec 8	5 (3 whitefronts)
	1-59, 67, 68, 69	Sept 1 - Oct 20	Morning Hunting Only
	1-76 (All Zones)	On and After Oct 15	3 Additional Snow or Ross' Geese
1985	1-14, 19, 22-29	Sept 25 - Dec 7	5 (2 whitefronts)
	15, 16, 17, 18, 20, 21 30-42, 44-47, 52	Sept 18 - Dec 7	5 (3 whitefronts)
	43, 48-51, 53-76	Sept 2 - Dec 7	5 (3 whitefronts)
	1-59, 67, 68, 69	Sept 2 - Oct 19	Morning Hunting Only
	1-76 (All Zones)	On and After Oct 15	3 Additional Snow or Ross' Geese
1986	1-14, 19, 22-29	Sept 24 - Dec 13	5 (2 whitefronts)
	15-18, 20, 21, 30-42 44-47, 52	Sept 17 - Dec 13	5 (3 whitefronts)
	43, 48-51, 53-76	Sept 1 - Dec 13	5 (3 whitefronts)
	1-59, 67-69	Sept 1 - Oct 19	Morning Hunting Only
	15-18, 20-22, 30-43 48-76	Oct 1 - Dec 13	3 Additional Snow or Ross' Geese
	1-14, 19, 23-29, 44-47	Oct 15 - Dec 13	3 Additional Snow or Ross' Geese
1987	1-14, 19, 22-29	Sept 21 - Dec 10	5 (2 whitefronts)
	15-18, 20, 21, 30-42 44-47, 52	Sept 14 - Dec 10	5 (3 whitefronts)
	43, 48-51, 53-76	Sept 1 - Dec 10	5 (3 whitefronts)
	1-59, 67-69	Sept 1 - Oct 22	Morning Hunting Only
	15-18, 20-22, 30-43, 48-76	Sept 28 - Dec 10	3 Additional Snow or Ross' Geese
	1-14, 19, 23-29, 44-47	Oct 24 - Dec 10	3 Additional Snow or Ross' Geese
1988	1-14, 19, 22-29	Sept 21 - Dec 10	5 (2 whitefronts)
	15-18, 20, 21, 30-42 44-47, 52	Sept 14 - Dec 10	5 (3 whitefronts)
	43, 48-51, 53-76	Sept 1 - Dec 10	5 (3 whitefronts)
	1-59, 67-69	Sept 1 - Oct 23	Morning Hunting Only
	15-18, 20-22, 30-43, 48-76	Sept 28 - Dec 10	3 Additional Snow or Ross' Geese
	1-14, 19, 23-29, 44-47	Oct 15 - Dec 10	3 Additional Snow or Ross' Geese

Appendix 13c. Saskatchewan sharp-tailed grouse hunting regulations, 1976 to 1988 (details omitted concerning some Wildlife Management Units and Parks).

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1976[a]	1-6, 8, 18-37	Sept 27 - Nov 13	5
	7, 9-17	Sept 27 - Nov 13	3
1977[a]	1-22 (Moose Mountain Park)	Sept 26 - Nov 19 (Sept 26 - Oct 22)	5
	23-36	Sept 12 - Nov 5	5
	37	Sept 5 - Nov 5	5
1978[a]	1-22 (Moose Mountain Park)	Sept 25 - Nov 11 (Sept 25 - Oct 28)	5
	23-33	Sept 18 - Nov 11	5
	34-37	Sept 4 - Nov 4	5
1979[a]	1-22 (Moose Mountain Park)	Sept 24 - Nov 10 (Sept 24 - Oct 27)	5
	23-33	Sept 17 - Nov 10	5
	34-37	Sept 3 - Nov 3	5
1980[a]	1-33 (Moose Mountain Park)	Sept 22 - Nov 15 (Sept 22 - Oct 25)	5
	34-37	Sept 1 - Nov 29	5
1981[b]	1-33 (Moose Mountain Park)	Sept 21 - Nov 14 (Sept 21 - Oct 24)	5
	34-37	Aug 31 - Dec 5	5
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 7 - Nov 14	5
1982[b]	1, 7, 8 (east Hwy #2)	Oct 4 - Nov 13	5
	9-22		
	2-6, 8 (west Hwy #2)	Oct 13 - Nov 13	5
	23-33	Oct 4 - Nov 27	5
	34-37	Aug 30 - Nov 27	5
1983[c]	1-4, 7-15	Oct 3 - Nov 12	5
	5, 6	Oct 3 - Nov 12	3
	16-22	Sept 26 - Nov 12	5
	23-37	Sept 5 - Dec 3	5
1984[d]	1-8, 15-30	Oct 1 - Nov 10	5
	9-14	Oct 1 - Nov 10	3
	31-47	Sept 24 - Nov 10	5
	48-76	Sept 10 - Dec 1	5
1985[d]	1-47	Sept 30 - Nov 16	3
	48-76	Sept 9 - Nov 30	3
1986[d]	1-47	Sept 22 - Nov 15	3
	48-76	Sept 8 - Nov 29	3
1987[d]	1-19, 23-29, 31-33	Sept 21 - Nov 14	5
	20-22, 30, 34-47	Sept 21 - Nov 14	3
	48-76	Sept 14 - Nov 28	3
1988[d]	1-19, 23-29, 31-33	Sept 21 - Nov 19	5
	20-22, 30, 34-47	Sept 21 - Nov 19	3
	48 - 76	Sept 7 - Dec 3	3
1989[d]	1-47	Sept 20 - Nov 3	3
	48-76	Sept 5 - Dec 1	3

[a] Canadian and non-resident game bird licences not valid for sharp-tailed grouse in Zones 5, 6, 14 and 15.

[b] All special restrictions lifted from Canadian residents; non-residents permitted to hunt sharptails in Zone 5 but not in Zones 6, 14 and 15.

[c] Non-residents of Canada not permitted to hunt sharptails in Zones 5, 6, 14 and 15.

[d] Non-residents of Canada may not hunt sharp-tailed grouse in Zone 9 to 14 and 25 to 28.

Appendix 13d. Saskatchewan Hungarian partridge hunting regulations, 1976 to 1988 (details omitted concerning some Wildlife Management Units and Parks).

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1976	1-6, 8	Sept 27 - Nov 13	6
	7, 9-22	Sept 27 - Nov 13	3
1977	1-15	Sept 26 - Nov 19	7
	16-22	Sept 26 - Nov 19	5
1978	1-9	Sept 25 - Nov 11	6
	10-22	Sept 25 - Nov 11	3
1979	1-16	Sept 24 - Nov 10	6
	17-22	Sept 24 - Nov 10	3
1980	1-16	Sept 22 - Nov 15	6
	17-22	Sept 22 - Nov 15	3
1981[a]	1-16	Sept 21 - Nov 14	6
	17-22	Sept 21 - Nov 14	3
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 7 - Nov 14	6
1982[a]	1, 7, 8 (west Hwy #2), 9-16	Sept 27 - Nov 16	5
	2-6, 8 (east Hwy #2)	Oct 13 - Nov 13	5
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 4 - Nov 13	5
	17-22	Sept 27 - Nov 13	3
1983[b]	1-12	Sept 26 - Nov 12	10
	Some W.M.U.'s	Oct 3 - Nov 12	10
	13-22	Sept 26 - Nov 12	5
1984[c]	1-24	Sept 24 - Nov 10	10
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 1 - Nov 10	10
	25-47	Sept 24 - Nov 10	5
	48-55 (including Fort a la Corne)	Sept 10 - Nov 10	5
1985[c]	1-14, 19	Sept 23 - Nov 16	10
	15-18, 20-26	Sept 23 - Nov 16	5
	Starting Sept 30, also Elbow, Estevan-Cambria, and Lomond #3 W.M.U.'s		
	27-55	Sept 23 - Nov 16	3
1986[c]	1-15, 18, 19, 31	Sept 22 - Nov 15	10
	16, 17, 20-29	Sept 22 - Nov 15	5
	30, 32-55	Sept 22 - Nov 15	3
1987[c]	1-19, 22-24, 29 and 31	Sept 21 - Nov 14	10
	20, 21, 25-28, 30, 32-34	Sept 21 - Nov 14	5
	35-55	Sept 21 - Nov 14	3
1988[c]	1-19, 22-24, 29 and 31	Sept 21 - Nov 19	10
	20, 21, 25-28, 30, 32-41	Sept 21 - Nov 19	5
	42-55	Sept 21 - Nov 19	3
	1-19, 24 and 31	Dec 5 - Dec 21	10

[a] Special restrictions lifted from Canadian residents. Non-residents cannot take huns in Zones 5, 6, 14 and 15.
[b] Non-residents of Canada not permitted to hunt partridge in Zones 5, 6, 14, and 15.
[c] Non-residents of Canada may not hunt Hungarian partridge in Zones 9 to 14 and 25 to 28.

Appendix 13e. **Saskatchewan pheasant hunting regulations, 1975-1988. NOTE: only Saskatchewan residents may hunt pheasants (cocks only) (details omitted concerning some Wildlife Management Units & Parks).**

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1975	1-6	Oct 6 - Nov 15	4
	7-17	Oct 6 - Nov 15	3
	6	Dec 8 - Dec 27	4
1976	7, 16, 17	Oct 4 - Oct 23	2
	1-6, 8	Oct 4 - Nov 13	5
	9-15	Oct 4 - Nov 13	2
	6	Dec 6 - Jan 1/77	5
1977	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 3 - Nov 19	5
	6	Dec 5 - Dec 31	5
1978	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 2 - Nov 11	5
	6	Dec 4 - Dec 30	5
1979	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 1 - Nov 10	5
	6	Dec 3 - Dec 29	5
1980	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 6 - Nov 15	5
	6	Dec 1 - Jan 3/81	5
1981	1-17 (including Last Mountain Lake, Estevan-Cambria & Lomond #3 W.M.U.'s)	Oct 7 - Nov 14	5
	1-5, 8	Nov 30 - Dec 12	5
	6	Nov 30 - Jan 2/82	5
1982	1-17 (including Last Mountain Lake W.M.U.)	Oct 6 - Nov 13	5
	1-9, 12, 17	Nov 26 - Dec 18	5
1983	1-17 (including Last Mountain Lake W.M.U.)	Oct 5 - Nov 12	5
	1-9, 12, 17	Nov 28 - Dec 17	5
1984	1-36 (includes Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s)	Oct 3 - Nov 10	5
	1-20, 23, 24, 31, 35, 36	Nov 26 - Dec 15	5
1985	1-36 (including Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s)	Oct 2 - Nov 16	3
	1-24, 29, 31, 35, 36	Dec 2 - Dec 21	3
1986[a]	1-36 (including Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s)	Oct 1 - Nov 15	3
1987	1-36	Oct 7 - Nov 14	3
	1-20 and 31	Nov 30 - Dec 19	3
1988	1-36	Oct 5 - Nov 19	3
	1-20, 24 and 31	Dec 5 - Dec 21	3

[a] Late season cancelled in 1986.

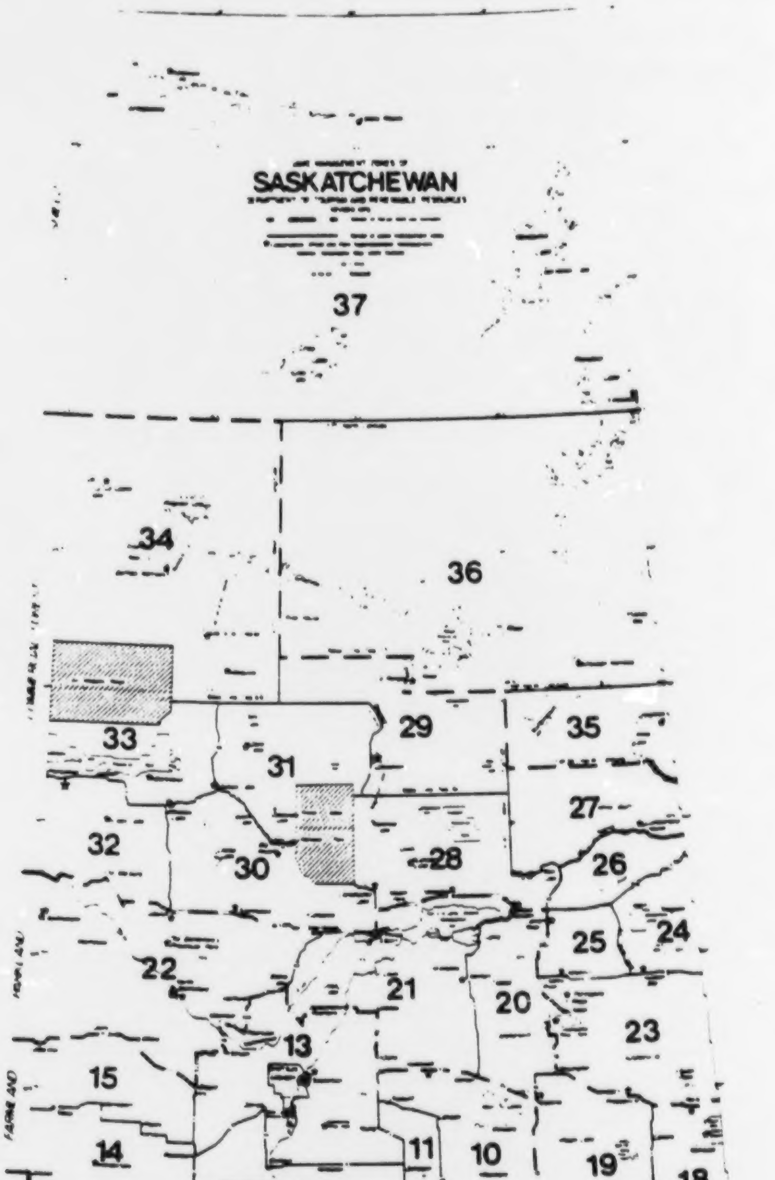
Appendix 13f. Saskatchewan ruffed grouse hunting regulations, 1976 to 1988 (details omitted concerning some Wildlife Management Zones and Parks).

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1976	1-15	Sept 27 - Nov 13	4
	16-22 (including Moose Mountain Park)	Sept 27 - Nov 13	6
	23-27	Sept 20 - Dec 4	6
1977	1-15	Sept 26 - Nov 19	5
	16-22	Sept 26 - Nov 19	5
	23-36	Sept 12 - Dec 10	10
	37	Sept 5 - Dec 10	10
	Moose Mountain Park	Sept 26 - Oct 22	10
1978	1-15	Sept 25 - Nov 11	5
	16-22	Sept 25 - Nov 11	10
	23-37	Sept 4 - Dec 2	10
	Moose Mountain Park	Sept 25 - Oct 28	10
1979	1-15	Sept 24 - Nov 10	5
	16-22	Sept 24 - Nov 10	10
	23-37	Sept 3 - Dec 1	
	Moose Mountain Park	Sept 24 - Oct 27	10
1980	1-22	Sept 22 - Nov 15	5
	23-37	Sept 1 - Dec 6	5
	Moose Mountain Park	Sept 22 - Oct 25	5
1981[a]	1-22	Sept 21 - Nov 14	5
	23-37	Aug 31 - Dec 5	5
	Elbow W.M.U.	Oct 7 - Nov 14	5
	Moose Mountain Park	Sept 21 - Oct 24	5
1982	1-22	Sept 27 - Nov 13	5
	23-33	Sept 13 - Nov 27	5
	34-37	Aug 30 - Nov 27	5
	Elbow W.M.U.	Oct 4 - Nov 13	5
	Moose Mountain Park	Nov 1 - Nov 24	5
	Greenwater Park	Nov 1 - Nov 27	5
1983	1-22	Sept 26 - Nov 12	5
	23-37	Sept 5 - Dec 3	5
	Elbow W.M.U.	Oct 3 - Nov 12	5
	Moose Mountain Park	Oct 31 - Nov 26	5
	Greenwater Park	Oct 24 - Dec 3	5
1984	1-47 (including Moose Mountain Park)	Sept 25- Nov 10	5
	48-76	Sept 10 - Dec 1	5
1985	1-47 (including Moose Mountain Park)	Sept 23 - Nov 16	5
	48-76	Sept 9 - Nov 30	5
1986	1-47 (including Moose Mountain Park)	Sept 22 - Nov 15	5
	48-76	Sept 8 - Nov 29	5
1987	1-47 & Moose Mountain Park	Sept 21 - Nov 14	5
	48-76	Sept 14 - Nov 28	10
1988	1-47 & Moose Mountain Park	Sept 21 - Nov 19	5
	48-76	Sept 7 - Dec 3	10

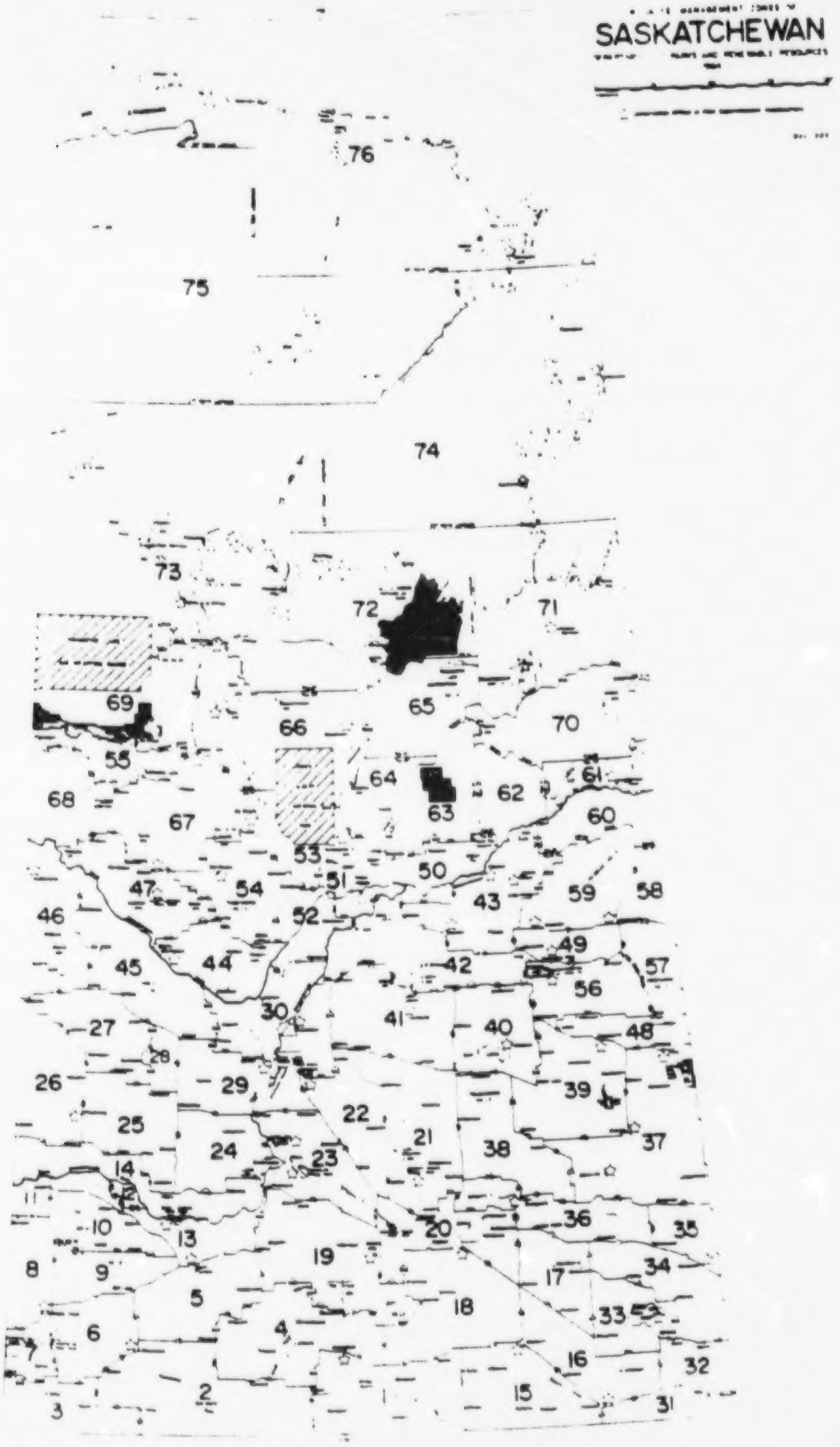
---

[a] Special restrictions removed for Canadian resident hunters. Non-residents could not take ruffed grouse in Zones 5, 6, 14 and 15.

Appendix 14. Saskatchewan game management zones, 1975 to 1983.


SASKATCHEWAN
37
36
34
33
35
29
31
27
32
30
28
26
25
24
22
21
20
23
13
15
14
11
10
19
18
12
6
5
17
9
3
4
8
16
7
2
1
GRASSLAND
FARMLAND
PARKLAND

Appendix 15. Saskatchewan wildlife management zones, 1984 to 1989.


SASKATCHEWAN
76
75
74
73
72
71
69
65
70
66
55
64
61
62
68
63
60
67
53
50
51
47
54
59
58
43
46
52
49
45
44
42
57
56
30
41
40
48
27
28
26
29
39
22
25
21
37
24
23
38
14
12
11
10
20
36
35
13
8
9
19
17
34
5
18
33
6
4
7
16
32
2
15
31
3

Appendix 16. 1988 Saskatchewan game bird hunter survey questionnaire.

Hon. Colin Maxwell
Minister
Culture
1988 Saskatchewan
Game Bird Hunter Survey

A Message from the Director of Wildlife

Fellow Sportsman,

As one of Saskatchewan's 40,000 game bird hunters, you have been selected to receive the 1988 Game Bird Hunter Survey.

This survey is important to future game bird hunting in Saskatchewan. In view of dwindling habitat, your harvest results form an integral part of game bird management in this province.

The survey provides important harvest and hunting pressure information for each wildlife management zone. We use your replies, along with spring breeding surveys and reproduction information from wing samples, to set responsible bird quotas and season dates.

Because hunters' names for the survey are selected randomly from last year's licence sales, you may receive a questionnaire two or more years in a row.

Please take a few minutes after you have completed your 1988 bird hunting to record your activity, then mail the survey in the enclosed postage paid envelope.

Your help in filling out the Game Bird Hunter Survey is appreciated. By doing so, you contribute to better wildlife management in Saskatchewan.

I sincerely hope your 1988 hunting season is successful.

Dennis Sherratt

Dennis Sherratt
Director
Wildlife Branch
Saskatchewan Parks, Recreation and Culture

Appendix 16. 1988 Saskatchewan game bird hunter survey questionnaire (con't).

1 **If you did not purchase a 1988 Saskatchewan Game Bird Licence please check ☑ here ☐ and return this survey immediately, thank you.**

2 **Check ☑ each hunting licence you purchased in 1988, even if you were unsuccessful**
Saskatchewan Game Bird Licence ☐ Migratory Game Bird Permit ☐

3 **Please record all your hunting activities, whether or not you bagged any birds.**

- ***Use a separate line for each date you hunted;*** **If you hunted in more than one zone on the same day, use a separate line for each zone. (See example below).**
- **Record the amount of time you hunted as follows:**
  (4 or more hours = 1 day Less than 4 hours = ½ day)
- **Record only the number of birds you bagged and retrieved.**
- **Check ☑ any bird species you hunted but did not bag**
- **See examples**

4 **Please mail no later than January 5, 1989.**

					Upland Birds						Migratory Birds							
											Ducks			Geese				
	Date	Wildlife Mgmt Zone	Time Hunted 1 Day	Time Hunted Day	Sharp-tailed Grouse	Hungarian Partridge	Ruffed Grouse	Spruce Grouse	Pheasant	Ptarmigan	Male/Drake Mallards	Female/Hen Mallards	Other Ducks	Canadas	White-fronts	Snows & Blues	Ross	Sandhill Cranes
EXAMPLES	Oct 7	5		✓	✓	2			1									
	Oct 7	19		✓	1	✓					1	1	✓					
	Oct 22	40	✓								2	✓	1	1	2	1		
	Nov 5	55		✓			2	✓										

Nº 13457

Appendix 16. 1988 Saskatchewan game bird hunter survey questionnaire (con't).

HUNTERS: This page is yours to keep.

Please tear off this section before mailing back the questionnaire in the enclosed, postage-paid envelope.

SEPTEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER

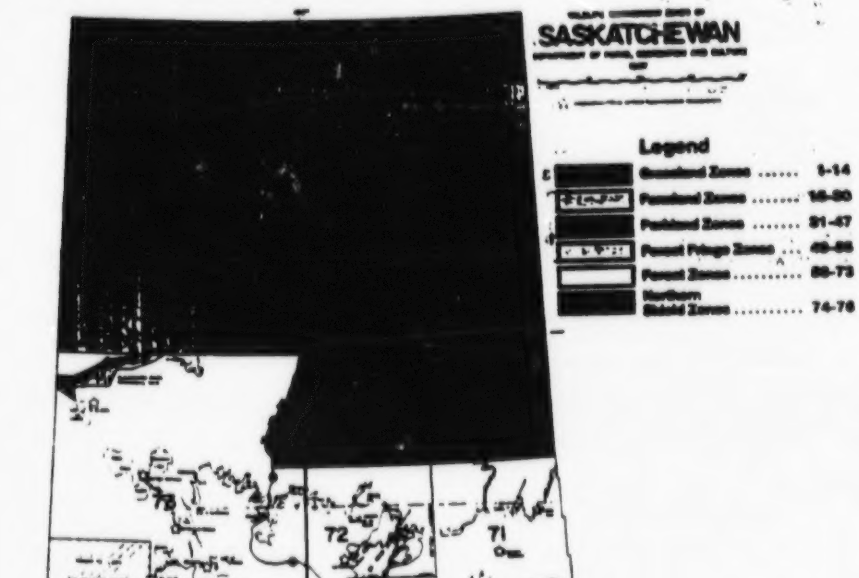
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NOVEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31


SASKATCHEWAN
Legend
Grassland Zones 1-14
Farmland Zones 15-30
Parkland Zones 31-47
Forest Fringe Zones ... 48-55
Forest Zones 56-73
Northern Shield Zones 74-76
73
72
71
69
66
65
70
55
68
64
63
62
67
60
53
50
59
58
54
52
49
57
56
48
27
25
24
22
21
23
20
19
17
18
16
15

A summary of last year's hunting statistics are on the reverse side, for your information

Appendix 16. 1988 Saskatchewan game bird hunter survey questionnaire (con't).

1987 Game Bird Hunting Activity

Waterfowl (duck and goose) hunter days decreased about 30 percent from 1986 with an estimated 24,000 active waterfowl hunters. Duck hunters harvested 101,000 mallards, down 1 percent from 1986 but well within the 25 percent harvest reduction objective of the North American Waterfowl Management Plan. Goose hunters bagged 16 percent fewer birds but wer slightly more successful (7.4 birds per successful hunter) than in 1986.

The sandhill crane harvest decreased by 36 percent to 4,775 birds with a corresponding 43 percent decrease in active hunters. Zone 21 (Last Mountain Lake) again accounted for the bul of the harvest (64%).

Total upland bird hunting activity (83,180 recreation days) increased 11 percent from 1986 levels in response to increased populations of all species. About 90 percent of the 25,000 acti upland bird hunters enjoyed success harvesting an average of 13.4 upland birds each.

The sharp-tailed grouse harvest stabilized at 1986 levels but all other upland bird harvests increased in 1987. The cock pheasant harvest increased by 50 percent to 16,500.

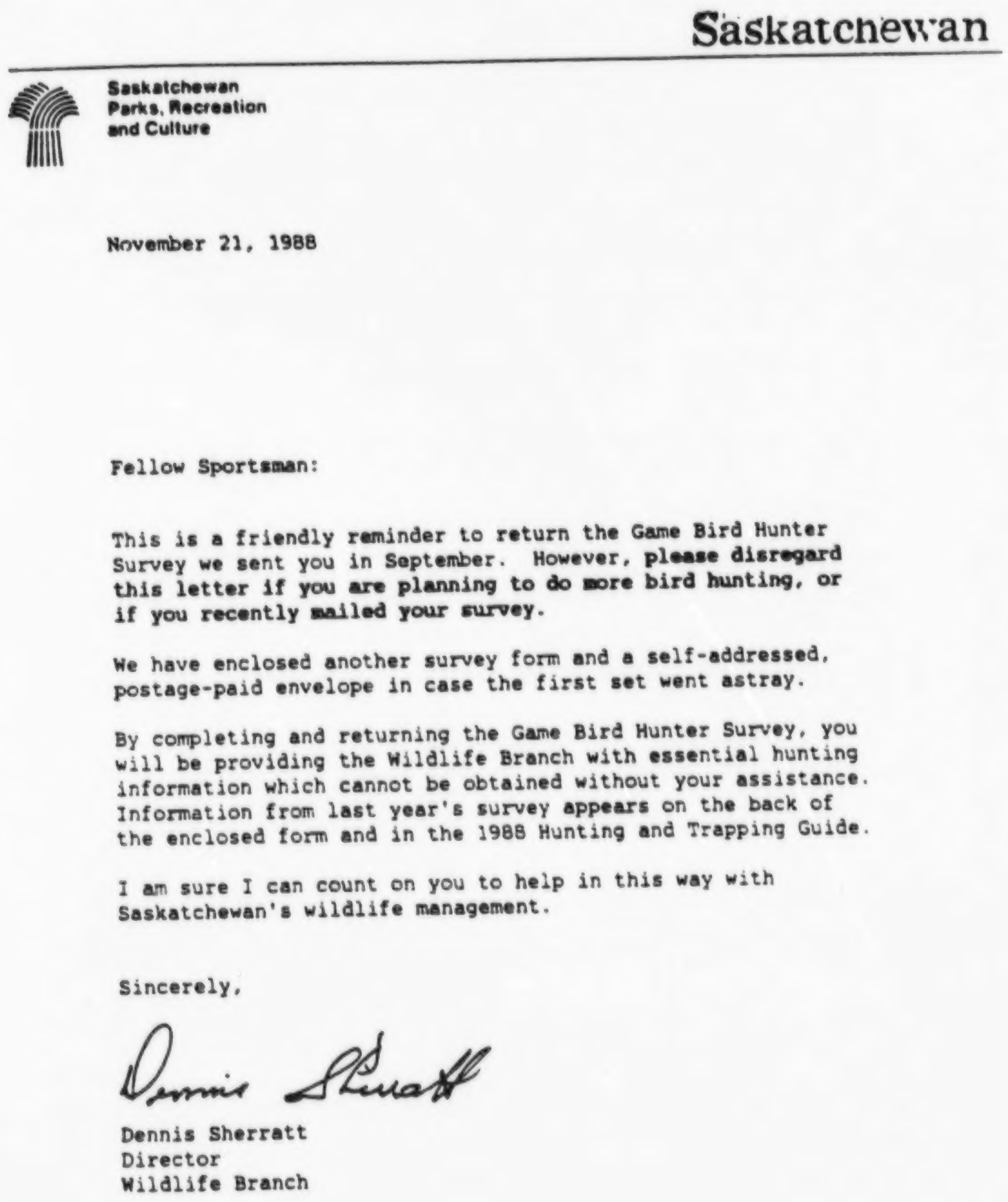
Saskatchewan residents purchased 35,190 game bird licences, down 15 percent from 1986. Licence sales to out-of-province Canadians were 2,029 while non-residents (primarily Americans) purchased 3,895 bird licences.

In summary, 1987 upland bird hunting was greatly improved, while low mallard populations he waterfowl hunting activity to below average levels.

	Harvest					Active Hunters				
	1983	1984	1985	1986	**1987**	1983	1984	1985	1986	19
Ducks	326 000	183 000	153 000	181.000	**138.000**	34.700	23.800	23 400	25 100	17.
Geese	213 000	182 000	176 000	159.000	**133.000**	35 600	27 400	28 000	29 500	21
Sandhill Cranes	3 000	3 100	6 200	7 500	**4.800**	1 230	1 320	1 760	2 160	1
Sharp tailed Grouse	58 800	54 200	41 800	78 600	**78.200**	21 100	17 200	15 800	21 900	18
Hungarian Partridge	61 100	59 800	42 000	92 300	**103.900**	19 000	15 500	12 900	18 000	15
Ruffed Grouse	13 500	13 000	15 100	46 000	**59.300**	8 800	6 700	6 400	10 100	11
Spruce Grouse	3 900	4 300	4 200	11 900	**14.200**	1 600	1 500	1 400	2 800	3
Pheasant	15.900	12 200	7.100	10 600	**16.400**	6 300	5 000	3 700	4 800	5

More detailed information concerning game bird management can be obtained from Wildlife Branch, Saskatchewan Parks, Recreation and Culture, 3211 Albert Street, Regina, Saskatchewan S4S 5W your local Parks, Recreation and Culture office.

Appendix 17. 1988 Saskatchewan game bird hunter survey follow-up letter.



Saskatchewan

Saskatchewan
Parks, Recreation
and Culture

November 21, 1988

Fellow Sportsman:

This is a friendly reminder to return the Game Bird Hunter Survey we sent you in September. However, **please disregard this letter if you are planning to do more bird hunting, or if you recently mailed your survey.**

We have enclosed another survey form and a self-addressed, postage-paid envelope in case the first set went astray.

By completing and returning the Game Bird Hunter Survey, you will be providing the Wildlife Branch with essential hunting information which cannot be obtained without your assistance. Information from last year's survey appears on the back of the enclosed form and in the 1988 Hunting and Trapping Guide.

I am sure I can count on you to help in this way with Saskatchewan's wildlife management.

Sincerely,

Dennis Sherratt

Dennis Sherratt
Director
Wildlife Branch

Appendix 18. Sharp-tailed grouse breeding index [males/mi^2 (km^2)] and harvest, 1972 to 1989[a].

Year	Grassland /mi^2	Grassland (/km^2)	Farmland /mi^2	Farmland (/km^2)	Parkland /mi^2	Parkland (/km^2)	Province /mi^2	Province (/km^2)	Harvest
1961	2.49	(0.96)	2.50	(0.97)	1.01	(0.39)	1.68	(0.65)	100,302
1962	1.61	(0.62)	2.17	(0.84)	0.79	(0.31)	1.36	(0.53)	72,790
1963	3.36	(1.29)	1.13	(0.44)	0.90	(0.35)	1.40	(0.54)	157,511
1964	2.37	(0.92)	1.95	(0.75)	1.02	(0.39)	1.67	(0.64)	144,454
1965	1.32	(0.51)	2.41	(0.93)	1.06	(0.41)	1.52	(0.59)	130,731
1966	1.68	(0.65)	1.73	(0.67)	1.24	(0.48)	1.50	(0.58)	149,739
1967	2.59	(1.00)	1.44	(0.56)	1.28	(0.49)	1.69	(0.65)	127,064
1968	2.88	(1.11)	1.86	(0.72)	1.41	(0.54)	1.90	(0.73)	122,922
1969	2.53	(0.98)	1.96	(0.76)	1.56	(0.60)	1.95	(0.75)	126,796
1970	1.80	(0.69)	3.29	(1.27)	2.57	(0.99)	2.55	(0.98)	120,636
1971	3.95	(1.53)	5.54	(2.14)	3.64	(1.41)	4.38	(1.69)	158,060
1972	4.17	(1.61)	N/A	—	N/A	—	3.64	(1.41)	107,813
1973	4.53	(1.75)	4.50	(1.74)	2.40	(0.93)	3.04	(1.17)	88,178
1974	3.42	(1.32)	3.10	(1.20)	1.10	(0.42)	2.10	(0.81)	48,808
1975	4.58	(1.77)	4.00	(1.54)	2.50	(0.97)	3.46	(1.34)	60,428
1976	4.51	(1.74)	4.79	(1.85)	3.82	(1.47)	4.36	(1.68)	130,784
1977	5.16	(1.99)	6.97	(2.69)	4.90	(1.89)	5.30	(2.05)	107,003
1978	3.37	(1.30)	5.92	(2.29)	5.15	(1.99)	4.59	(1.77)	104,497
1979	5.82[b]	(2.25)	9.00	(3.47)	5.40	(2.08)	6.60	(2.55)	126,824
1980	4.70	(1.81)	6.90	(2.66)	5.20	(2.01)	6.00	(2.32)	108,455
1981	2.90	(1.12)	4.70	(1.81)	4.90	(1.89)	4.10	(1.58)	82,745
1982	3.04	(1.17)	3.54	(1.37)	3.68	(1.42)	3.36	(1.30)	51,741
1983	2.30	(0.89)	3.30	(1.27)	3.60	(1.39)	3.00	(1.16)	58,823
1984	3.40	(1.31)	4.25	(1.64)	3.32	(1.28)	3.50	(1.35)	54,233
1985	2.34	(0.90)	3.47	(1.34)	3.19	(1.28)	3.06	(1.18)	41,788
1986	4.19	(1.62)	5.38	(2.08)	4.40	(1.70)	4.88	(1.88)	78,565
1987	7.41	(2.86)	7.46	(2.88)	5.09	(1.96)	6.81	(2.63)	78,210
1988	7.84	(3.02)	6.82	(2.63)	5.76	(2.22)	6.86	(2.65)	51,786
1989	6.35	(2.45)	3.72	(1.44)	3.60	(1.39)	3.88	(1.50)	—

[a] 1961 to 1969 based on total birds counted; not on males/mi^2.

[b] Based on only two survey blocks completed (Meyronne 29 mi^2 - 108 males; Sceptre South 20 mi^2 - 177 males.

Appendix 19. Hungarian partridge harvest and hunting pressure by Wildlife Management Zone, 1988.

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
1	6,451	8.20	782	0.775	2.6	2,475	1,300
2	4,305	5.47	978	0.405	1.7	2,568	1,062
3	35	0.04	42	0.008	1.7	21	14
4	4,861	6.18	1,303	0.599	1.7	2,908	1,428
5	4,090	5.20	862	0.686	2.2	1,877	927
6	608	0.77	236	0.145	2.0	309	145
7	148	0.18	62	0.074	1.7	83	56
8	836	1.06	201	0.246	3.0	279	198
9	802	1.02	402	0.233	1.6	504	266
10	954	1.21	451	0.269	1.3	722	333
11	458	0.58	208	0.465	1.7	263	112
12	252	0.32	173	0.733	1.7	152	81
13	1,455	1.85	480	0.356	2.3	634	389
14	841	1.07	486	0.151	1.1	746	308
GR	26,088	33.18	6,667	0.403	1.9	13,540	6,618
15	13,313	16.93	2,003	1.980	1.9	6,895	3,225
16	4,391	5.58	734	0.827	2.7	1,619	982
17	1,876	2.39	673	0.491	1.5	1,220	566
18	6,238	7.93	1,267	0.838	2.9	2,164	1,376
19	6,344	8.07	1,690	0.608	2.0	3,161	1,788
20	1,203	1.53	607	0.217	1.5	799	385
21	2,890	3.68	1,259	0.345	1.3	2,297	1,085
22	757	0.96	480	0.160	1.6	463	237
23	1,234	1.57	798	0.215	1.6	794	423
24	1,192	1.52	539	0.247	1.4	837	421
25	695	0.88	327	0.119	1.5	458	220
26	407	0.52	222	0.092	1.9	221	136
27	267	0.34	147	0.054	2.0	135	94
28	170	0.22	146	0.126	1.3	136	56
29	1,370	1.74	795	0.257	1.3	1,039	456
30	1,050	1.33	670	0.145	0.9	1,134	344
FA	43,395	55.19	12,248	0.478	1.9	23,363	11,793
31	2,285	2.91	389	0.986	2.9	790	429
32	560	0.71	174	0.201	1.5	385	175
33	720	0.92	320	0.186	0.5	1,538	279
34	477	0.61	258	0.089	0.6	788	158
35	209	0.27	119	0.080	0.3	612	87
36	901	1.15	395	0.174	0.8	1,168	370
37	562	0.71	436	0.050	0.3	1,748	171
38	236	0.30	199	0.037	0.5	454	87
39	478	0.61	324	0.063	0.3	1,808	178
40	261	0.33	222	0.048	0.4	721	93

>>>>>>>>>>>>>>>>>>>>>>> T O T A L >>>>>>>>>>>>>>>>>>>>>>>

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
41	351	0.45	202	0.049	1.0	362	97
42	201	0.26	195	0.027	0.2	823	84
43	190	0.24	133	0.028	0.2	788	66
44	341	0.43	293	0.074	0.5	737	129
45	425	0.54	335	0.056	0.5	875	170
46	120	0.15	76	0.020	0.4	303	41
47	354	0.45	178	0.042	0.3	1,063	126
PA	8,671	11.03	4,178	0.088	0.6	14,963	2,740
48	139	0.18	62	0.035	0.1	1,040	45
49	35	0.04	35	0.014	0.1	624	14
50	28	0.04	42	0.008	0.0	827	14
51	91	0.12	101	0.032	0.2	374	37
52	84	0.11	76	0.030	0.1	833	18
53	3	0.00	35	0.001	0.0	754	1
54	49	0.06	126	0.009	0.0	1,498	18
55	42	0.05	28	0.011	0.0	930	14
FF	472	0.60	505	0.018	0.1	6,093	160
56	0	0.00	0	0.000	0.0	2,251	0
57	0	0.00	0	0.000	0.0	749	0
58	0	0.00	0	0.000	0.0	566	0
59	0	0.00	0	0.000	0.0	1,162	0
60	0	0.00	0	0.000	0.0	230	0
61	0	0.00	0	0.000	0.0	62	0
62	0	0.00	0	0.000	0.0	790	0
63	0	0.00	0	0.000	0.0	1,646	0
64	0	0.00	0	0.000	0.0	494	0
65	0	0.00	0	0.000	0.0	686	0
66	0	0.00	0	0.000	0.0	675	0
67	0	0.00	0	0.000	0.0	2,467	0
68	0	0.00	0	0.000	0.0	504	0
69	0	0.00	0	0.000	0.0	414	0
70	0	0.00	0	0.000	0.0	108	0
71	0	0.00	0	0.000	0.0	21	0
72	0	0.00	0	0.000	0.0	87	0
73	0	0.00	0	0.000	0.0	215	0
FD	0	0.00	0	0.000	0.0	13,076	0
74	0	0.00	0	0.000	0.0	10	0
75	0	0.00	0	0.000	0.0	139	0
76	0	0.00	0	0.000	0.0	21	0
WS	0	0.00	0	0.000	0.0	170	0
	78,626	100.00	23,598	0.125	1.1	72,005	21,311

- * Hunter Days are based on all Upland Hunting.
- * The Total Active Hunter value is NOT the true Provincial Total.

Appendix 20. Pheasant harvest and hunting pressure by Wildlife Management Zone, 1988.

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
1	262	2.35	291	0.032	0.1	2,475	133
2	1,869	16.77	937	0.176	0.7	7,568	848
3	7	0.06	14	0.002	0.3	21	7
4	1,965	17.63	1,201	0.242	0.7	2,908	985
5	1,162	10.43	711	0.195	0.6	1,877	366
6	124	1.11	111	0.030	0.4	309	58
7	41	0.37	45	0.022	0.5	83	10
8	83	0.74	87	0.024	0.3	279	41
9	14	0.12	46	0.004	0.0	504	10
10	62	0.56	88	0.018	0.1	722	39
11	131	1.18	125	0.133	0.5	263	58
12	0	0.00	14	0.000	0.0	152	0
13	69	0.62	104	0.017	0.1	639	30
14	352	3.16	316	0.063	0.5	796	101
GR	6,141	55.10	4,102	0.095	0.5	13,540	2,959
15	4,579	41.08	1,596	0.681	0.7	6,895	1,963
16	7	0.06	32	0.001	0.0	1,619	3
17	7	0.06	28	0.002	0.0	1,220	7
18	41	0.35	205	0.008	0.0	2,164	40
19	124	1.11	236	0.013	0.0	3,161	91
20	7	0.06	28	0.001	0.0	799	3
21	7	0.06	32	0.001	0.0	2,297	3
22	0	0.00	21	0.000	0.0	463	0
23	14	0.12	52	0.002	0.0	794	6
24	0	0.00	14	0.000	0.0	837	0
25	7	0.06	7	0.001	0.0	450	7
26	0	0.00	7	0.000	0.0	221	0
27	0	0.00	0	0.000	0.0	135	0
28	0	0.00	0	0.000	0.0	136	0
29	0	0.00	0	0.000	0.0	1,039	0
30	0	0.00	14	0.000	0.0	1,134	0
FA	4,811	43.17	2,311	0.053	0.2	23,363	2,123
31	166	1.49	125	0.066	0.2	790	72
32	7	0.06	14	0.002	0.0	385	3
33	0	0.00	14	0.000	0.0	1,538	0
34	0	0.00	0	0.000	0.0	788	0
35	0	0.00	28	0.000	0.0	612	0
36	21	0.19	14	0.004	0.0	1,168	3
37	0	0.00	0	0.000	0.0	1,748	0
38	0	0.00	0	0.000	0.0	454	0
39	0	0.00	0	0.000	0.0	1,808	0
40	0	0.00	0	0.000	0.0	721	0

WMZ	Total Kill	% of Harvest	Active Hunters per WMZ	Kill per sq.Km.	Kill per Day	Total Hunter Days	Species Hunter Days
41	0	0.00	0	0.000	0.0	362	0
42	0	0.00	0	0.000	0.0	823	0
43	0	0.00	0	0.000	0.0	788	0
44	0	0.00	0	0.000	0.0	737	0
45	0	0.00	0	0.000	0.0	875	0
46	0	0.00	0	0.000	0.0	383	0
47	0	0.00	0	0.000	0.0	1,063	0
PA	194	1.74	194	0.002	0.0	14,963	79
48	0	0.00	0	0.000	0.0	1,060	0
49	0	0.00	0	0.000	0.0	626	0
50	0	0.00	0	0.000	0.0	827	0
51	0	0.00	0	0.000	0.0	374	0
52	0	0.00	0	0.000	0.0	833	0
53	0	0.00	0	0.000	0.0	754	0
54	0	0.00	0	0.000	0.0	1,490	0
55	0	0.00	0	0.000	0.0	930	0
FF	0	0.00	0	0.000	0.0	6,873	0
56	0	0.00	0	0.000	0.0	2,251	0
57	0	0.00	0	0.000	0.0	797	0
58	0	0.00	0	0.000	0.0	566	0
59	0	0.00	0	0.000	0.0	1,162	0
60	0	0.00	0	0.000	0.0	230	0
61	0	0.00	0	0.000	0.0	62	0
62	0	0.00	0	0.000	0.0	740	0
63	0	0.00	0	0.000	0.0	1,696	0
64	0	0.00	0	0.000	0.0	494	0
65	0	0.00	0	0.000	0.0	686	0
66	0	0.00	0	0.000	0.0	675	0
67	0	0.00	0	0.000	0.0	2,467	0
68	0	0.00	0	0.000	0.0	504	0
69	0	0.00	0	0.000	0.0	414	0
70	0	0.00	0	0.000	0.0	108	0
71	0	0.00	0	0.000	0.0	21	0
72	0	0.00	0	0.000	0.0	87	0
73	0	0.00	0	0.000	0.0	215	0
FB	0	0.00	0	0.000	0.0	13,076	0
74	0	0.00	0	0.000	0.0	10	0
75	0	0.00	0	0.000	0.0	139	0
76	0	0.00	0	0.000	0.0	21	0
NS	0	0.00	0	0.000	0.0	170	0
T O T A L	11,146	100.00	6,607	0.018	0.2	72,005	5,161

* Hunter Days are based on all Upland Hunting.
* The Total Active Hunter value is NOT the true Provincial Total.

Appendix 21. Saskatchewan pheasant licence sales, hunting activity and harvest, 1972 to 1988.

Year	Harvest	Licence Sales	Active Hunters
1972	10,195	5,097	3,921[a]
1973	18,260	6,329	4,348[a]
1974	8,589	3,935	3,642
1975	10,398	4,816	3,810
1976	14,488	6,166	4,619
1977	19,097	6,973	5,726
1978	10,165	6,186	4,476
1979	7,060	5,341	3,441
1980	11,823	6,019	4,150
1981	12,536	6,418	4,825
1982	7,511	5,713	3,915
1983	15,857	0	6,348
1984	12,182	0	4,975
1985	7,084	0	3,704
1986	10,557	0	4,767
1987	16,439	0	5,523
Averages 1972-1987 $\overline{X}$	12,015	1972-82 $\overline{X}$ 5,727	1972-86 $\overline{X}$ 4,511
1988	11,416	0	4,941

[a] Interpolated from harvest estimate divided by birds taken per active hunter.

Appendix 22. Saskatchewan pheasant spring breeding population index and harvest, 1972 to 1989.

Year	Provincial Index Crow Calls Per Stop	Source of Data	Harvest
1972	2.72	1975	10,195
1973	3.83	1975	18,260
1974	1.43	1975	8,589
1975	1.82	1976	10,398
1976	2.05	1976	14,488
1977	2.91	1978	19,097
1978	2.00	1978	10,165
1979	1.89	1980	7,060
1980	2.94[a]	1980	11,823
1981	2.90	1981	12,536
1982	2.20	1982	7,511
1983	3.60	1983	15,857
1984	3.25[b]	1986	12,182
1985	1.93	1986	7,084
1986	1.78	1986	10,557
1987	4.86	1987	16,439
1988	5.33	1988	11,146
1989	2.74	1989	—

[a] This index excludes routes new or altered from 1979 or 1980 and excludes the Val Marie route (poorly done in 1979).

[b] Index excludes routes not comparable to 1985.

Appendix 23. Saskatchewan ruffed and spruce grouse harvest, 1972 to 1988.

Year	Ruffed Grouse Harvest	Spruce Grouse Harvest
1972	29853	3789
1973	12743	1363
1974	14205	3220
1975	36274	10341
1976	83805	13066
1977	94353	15990
1978	94203	11779
1979	86309	13164
1980	91519	11580
1981	36711	5876
1982	16886	3175
1983	13521	3945
1984	12986	4345
1985	15074	4229
1986	47978	11883
1987	89322	14213
1988	86800	15332